

JULY
1911

MOTOR BOATING

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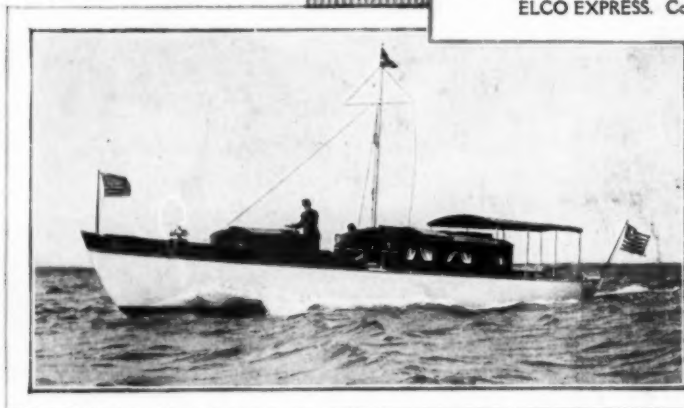


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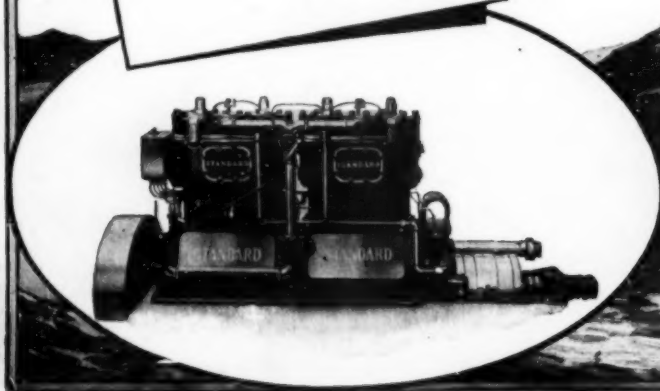
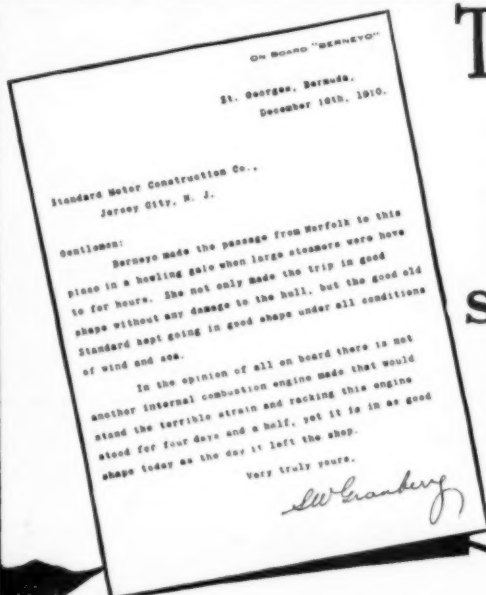
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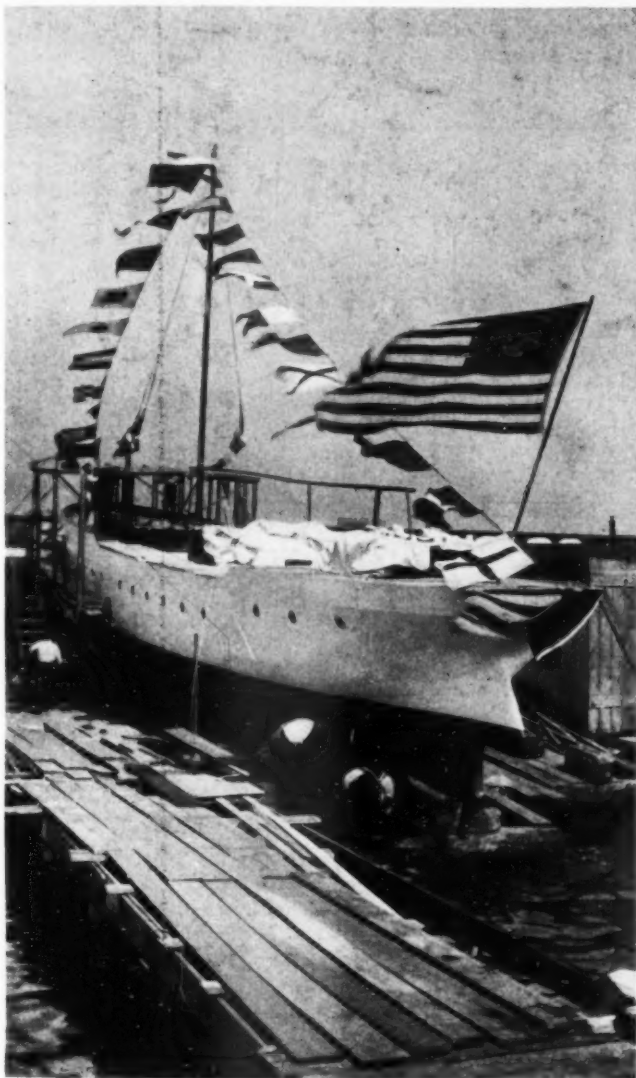
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Preparing for the Slide.

(See note on page 72.)

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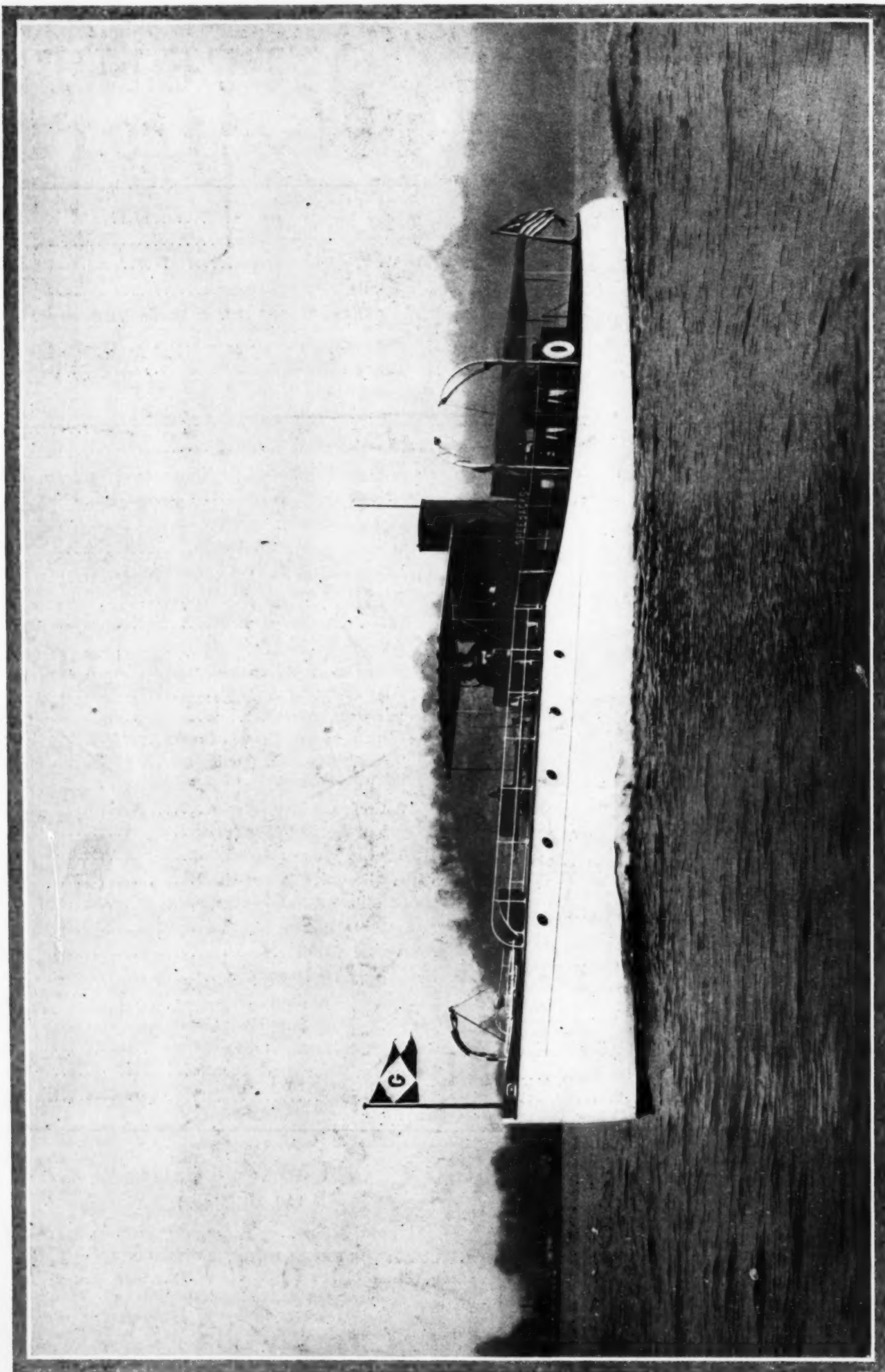
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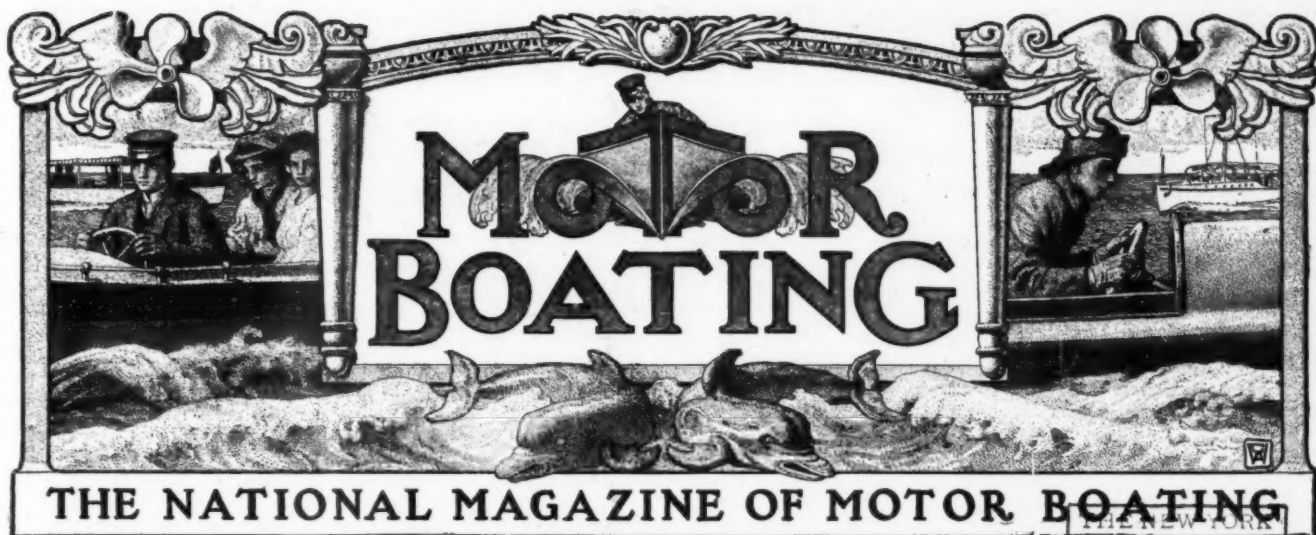
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Photograph by Letick

Specjacks, A Thoroughbred.

The twin screw 77-footer, Specjacks, was recently delivered to Rear Commodore Albert Y. Gowen, of the Cleveland Yacht Club, by the Gas Engine & Power Co. & Charles L. Seabury Co., Cons. Her beam is 10 ft. 6 in. and her draft 3 ft. 6 in., and her hull is double planked. She carries a brace of six cylinders, 8 in. by 8 in. Speedway motors of 175-200 h. p. each, and her speed is all that her appearance would suggest.



THE NATIONAL MAGAZINE OF MOTOR BOATING

The "Nine-Foot Stage."

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1912

The Importance of the Vast Undertaking that is to Make the Ohio a Navigable River. Fifty-Four Great Dams from Cairo to Pittsburg and What They Will Mean to the Central West.

By Lee Lamar Robinson.

THE nine-foot stage from Pittsburg to Cairo, which will mean when completed practically a year-round navigation stage, is well on the way to practical realization. As a result, the hopes of a little body of rivermen in the Ohio Valley who, as far back as fifteen years ago, believed that the Ohio was the natural highway of commerce for this part of the country, are soaring high. It has been estimated that from 20,000,000 to 25,000,000 people will profit commercially, to a greater or less degree, by the carrying out of what is now proudly referred to as a policy, not as a project. For ten long years it was a project. The approval which came from the President of the United States, the Secretary of War and the Committee on Rivers and Harbors of the Lower House of Congress, and the Senate Committee on Commerce, made of it a policy.

Along this line President William H. Taft said, in part, to members of the Ohio Valley Improvement Association, gathered in the east room at the White House:

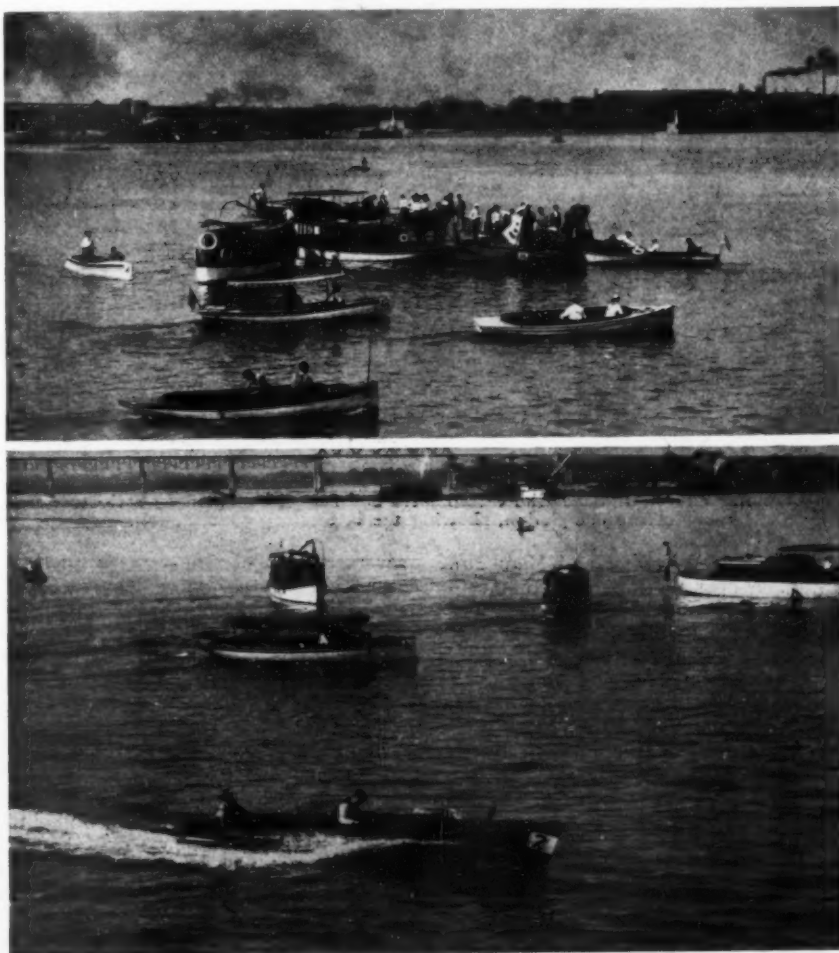
"I am only a coordinate branch of the government, and the least important of these branches, but such influence as I can bring to bear you can count on my bringing to bear in favor of the Ohio River, and it is not because I was born and brought up in

Ohio, and looked across the river until I left Ohio, but it is because I have looked into the question of the improvement, and if I came from the Columbia River I should still be in favor of the improvement of the Ohio."

Not only will the completion of this big enterprise, which will cost a total of \$65,000,000 and be finished within twelve years from March 3, 1910, mean countless millions expended in a commercial way, but it will make of the Ohio a succession

of what will be in reality, a chain of lakes as far as the pleasures of boating are concerned, and an impetus will be given to the motor boat industry which will transform it into one of the most prominent and lucrative in the territory affected. This has been demonstrated decisively even this early, most strikingly between Louisville and Cincinnati. The completion of the combination Boulé and Chanoine dam at the head of the falls of the Ohio, at Louisville, stretching away to the Indiana side, has been the means of converting the river at that point into a veritable water promenade every day during the motoring season, which is a lengthy one in this climate.

For the past six weeks owners and workmen have been busy putting the boats into the water, repainting them, overhauling motors



Already some sections of the river have felt the benefits of the nine-foot stage.

and gear, and making everything ship-shape for the sport which is so eagerly looked forward to. Motor boating about the falls of the Ohio is no longer a fad. It is a fixture, with both pleasure and health as the objectives. Cincinnati, Madison, Wheeling, Huntington and dozens of other points have developed, in proportion to their size, just as many enthusiasts as have Louisville and Jeffersonville. But to return to the work following the conception of the project and the steps which followed.

The Ohio Valley Improvement Association was the outgrowth of the determination on the part of those who fathered the plan, and the members never faltered, although confronted by many obstacles, until the heads of the various necessary branches of the federal government had become not only friendly to it, but "boosters" as well. The story, continued as it was through many years, is one of commercial interest and magnitude with few parallels.

In importance the Ohio will take its place with the Mississippi and the Panama Canal. All these, it is believed, will become links in the chain of industrial activity which, as a natural sequence, will follow. Some of the results to date, including the dam at the head of the falls, are:

Fourteen dams completed or practically so and four others well under way.

The distances below Pittsburg of these fourteen, respectively, are as follows:

Four and seven-tenths miles, nine miles, ten and nine-tenths miles, eighteen and six-tenths miles, twenty-three and nine-tenths miles, twenty-eight and eight-tenths miles, forty-six and one-tenth miles, seventy-six and three-tenths miles, seventy-five and eight-tenths miles, 179.3 miles, 191.4 miles, 278 miles, 481.3 miles and 604 miles.

Dam No. 12 is to be built two and one-half miles above Wheeling and Dam No. 28 four miles below Huntington, near the mouth of the Guyandotte River. Number 40 will be located near Madison and one and nine-tenths miles below the mouth of the Kentucky River. Number 46 will be four miles above Owensboro, Ky., Number 48 one mile below Henderson, Ky., and Number 54 near Mound City, Ill. The Davis Island Dam, near Pittsburg, number fifty-four.

The dam at the head of the falls is the longest, measuring a little more than a mile. The one just below Cincinnati, Fernbank Dam, also is an extensive one. The greatest interest, naturally, centers in the dam at Louisville, and the building of it at the head of the falls, the latter the most beautiful, from a natural standpoint, and the most dangerous cataract between Pittsburg and New Orleans. Engineers the country over have visited the dam and have unanimously admired it.

In connection with the elaborate plans for damming the river at Louisville, is included the widening of the Louisville and

Portland Canal at a cost of \$2,000,000. This dam cost about \$300,000. The canal is now eighty feet wide. It will be made 200 feet wide. One new lock also will be built, making three in number.

The dam at the head of the falls, comprehensive though it is, was constructed at a comparatively small cost, due to the natural rock foundation. In building the other dams the foundations will have to be provided in their entirety. The members of the board of engineers of the War Department who have charge of the construction of the fifty-four dams are as follows: Gen. William H. Bixby, Washington, chief engineer; Lieut-Col. H. C. Newcomer, Pittsburg; Maj. F. W. Altstatter, Wheeling; Maj. Henry Jervey, Cincinnati; Capt. Lytle Brown, Louisville.

The completion of the ambitious undertaking which these

engineer officers have on hand will constitute a task notable among similar engineering feats. In discussing the work which paved the way for this achievement, Capt. Pink Varble, of Louisville, who was one of those who conceived it, said:

"A bunch of river men who had been brought up on traditions dealing with the commercial importance in the early days of the Ohio, got together about fifteen years ago and discussed the feasibility of the project, its commercial possibilities and the work necessary to make of it a reality." Capt. Varble, continuing, said that the proportions were staggering, but the optimism of the promoters knew no bounds, and a meeting was called for Cincinnati. There men from Pennsylvania, West Virginia, Ohio, Kentucky, Indiana and Illinois met, among them Col. John L. Vance, of Columbus, Ohio, former member of Congress. An organization known as the Ohio Valley Im-

provement Association was formed. Officers and directors from towns located on the Ohio were named. Capt. John F. Ellison, of Cincinnati, was made secretary-treasurer. For seven years annual meetings were held in Washington in order to bring influence to bear on members of Congress and high officers of the government, and it was necessary at these meetings to pass the hat around in order to secure funds to carry on the fight. Field men were sent out into districts over the country and lecturers were put on many of the Chautauqua platforms.

This was for the purpose of creating a favorable sentiment among the masses that influence might be brought to bear on the various Congressmen. The press in the Ohio Valley was furnished material for countless articles. All this had its effect, and sentiment in favor of the project was crystalized. The possibility of a return of the day of the magnificent steamers which once plied the Ohio and the Mississippi, together with the marvelously increased possibilities in the way of business from a transportation standpoint, had its effect.



The Chanoine dam at Indiana Chute completed and raised, and (below) a closer view taken before completion, showing the interesting construction.

In 1904 the National Rivers and Harbors Congress was formed. Capt. Ellison was made secretary-treasurer of this organization. Meetings held with Congressmen and Congressional committees, and others, won the day and, as stated earlier, the project became a policy indorsed by the President in the language already quoted, and by Congress. The annual appropriations to carry out the work are now assured beyond a doubt.

Senator John Sharp William, the brilliant southerner, is quoted as saying: "River and harbor appropriation bills ought to be continuous and symmetrical."

Congressman Stephen M. Sparkman, of Florida, the new chairman of the House Rivers and Harbors Committee, says: "I see no reason why the policy of the last two years in the preparation of the river and harbor bill should be changed."

These expressions would indicate that there is no likelihood of any changes, even through the mutations of politics, which will interfere with the carrying out of the general policy of river improvements and especially that which contemplates the construction of the fifty-four dams between Pittsburg and Cairo before the year 1922 has become history. The fact that this stage is now a reality from Louisville to Cincinnati naturally is gratifying to those living in that section. The one dam at the head of the falls makes possible the nine-foot stage as far as Madison, Ind., a distance of fifty-three miles.

In addition to Capt. Varble, Col. Vance, and Capt. Ellison, the other pioneers who deserve to have their names carved on the particular hall of fame commemorating the nine-foot stage project, are Attorney Alfred Bettlinger, of Cincinnati; Sanders Fowler, of Paducah, Ky.; Charles H. Bohmer, of Louisville, and Mayor George Parsons, of Cairo. The revitalization of river commerce on the Ohio coming along as a companion project to the Panama Canal achievement will mean the continuous connection by water of the territory adjacent to the Gulf of Mexico with that of the east and north. The nine-foot stage, say its promoters, will make the Ohio the natural National Waterway Trunk Line from north to south. At present the railroads have trunk lines only from east to west across the continent. A specific instance of the faith which one great manufacturing concern has in the possibilities of such a waterway trunk line is afforded by the action of the American Steel and Wire Fence Company. It is building a steel barge line to be put in commission as soon as the year-round stage is a reality between Pittsburg and Cairo. It will spend millions of dollars on this line. The barges will be modeled after the hull of a steamboat. This transportation line will move on the water on a fixed schedule the same as that of a steam railroad. Approximately 160 cities and towns along the Ohio will be directly benefitted by the restoring of river traffic. At Jeffersonville,

Ind., for instance, a town of 10,000 or 12,000 population, is located what is claimed to be the finest wharf between the two projected terminal points. Deep, inviting harbors, one after the other, will be provided. Capt. Lytle Brown, of the bureau of engineers in active charge of the construction of the locks and dams, in an address before the members of the Builders' Exchange, of Louisville, said:

"Many of us do not appreciate the extent to which our great rivers have already contributed toward our development and civilization. From the time of the raft and canoe of the pioneer to the powerful towboat of today they have been the highways of our most fertile and productive regions."

In discussing the scheme from a mechanical standpoint, especially as to operation, he said to the writer:

"All of the dams are movable and, as a rule, are divided into

three sections: the navigable pass, 700 feet long; two bear traps, 91 feet long, and the regulating weir, varying considerably in length. When the river reaches a natural nine-foot stage, with the probability of remaining at or above this stage for some time, the dams will be thrown down flat on the river bottom, permitting free and uninterrupted use of the open channel.

"The locks are 110 feet wide by 600 feet long in the clear, they are closed by rolling steel gates at the upper and lower ends, and emptied and filled through thirty-two butterfly valves located in the river wall. These valves, and the gate engines, are operated by compressed air furnished by a power house on the bank. The average length between dams, or the length of pools in that section of the river between Pittsburg and Wheeling, is about six miles; between Wheeling and Parkersburg,

about eight miles; between Parkersburg and Cincinnati, about twelve miles, and between Cincinnati and the mouth about thirty miles.

"The average lift at each lock is about seven feet and the time of lockage will be approximately fifteen minutes. The bear traps are a peculiarity of this special scheme of river improvement. Each bear trap consists of two steel leaves ninety-one feet long, hinged on the up-stream side of one leaf, and the down-stream side of the other, and in rolling contact where they overlap. These bear traps are raised by the action of the hydrostatic head assisted by compressed air. They are used for the purpose of passing drift and ice and for passing sudden rises of short duration which would otherwise require the lowering of the other parts of the dam.

"The bear traps require no boat, or manual labor, for their operation. The navigable pass and the regulating weir are of the Chanoine type of movable dam and consist of separate wickets four feet wide and about sixteen and one-half feet long. These are hinged so they can be raised in a nearly ver-



Boulé dam at Louisville. Above, trestles raised ready to receive the wickets; below, trestles in place but collapsed, before the removal of the temporary dam.



The Falls of the Ohio at Louisville during low water. The nine foot stage will make such places navigable the year 'round.

tical position and held by a steel prop, thus forming the dam. When the dam is lowered these wickets rest flat on the bottom. This portion of the dam is operated from a maneuver boat, this boat being furnished with hoisting engine, derrick, capstan and suitable lines.

"The wickets of the navigable pass are about sixteen and one-half feet long, as mentioned above, but those of the regulating weir are on a raised sill and are only twelve feet long. The theory of operation is that the navigable pass wickets are first raised against the current and the bulk of the discharge then passes through the weir and the bear traps. As the wickets of the weir are raised on a sill and are short they can be handled in a much stronger current and are raised after the wickets of the navigable pass have been raised. Finally the bear traps are raised by turning on the compressed air. In case sudden rises occur which cannot be passed through the bear traps alone a portion or all of the regulating weir may be thrown, thus keeping the stage at such a height as will not require the throwing down of the navigable pass wickets. In case of a prolonged rise the whole dam is always thrown and the locks so put out of commission.

"The Boulé type of dam at Louisville takes the place of the regulating weir and bear trap above described."

Reverting once more to the fascinations which attach to river sports, motor boating today being the recognized leader, and the relations between the latter and the permanent stage of water, the particularly inviting opportunities afforded at Louisville and Cincinnati, and between these two points, have literally transformed the conditions. Above the falls is now provided one of the ideal race courses of the inland waters of the country. Annual regattas now are held with entries from points hundreds of miles distant attracted by the possibilities of a straightaway course of miles. The broad proportions of the Ohio at the head of the falls makes a get-a-way possible

which is a delight to the participants. The regatta at Louisville usually follows the one at Cincinnati, as this makes it convenient for entries in the first to take part in the second.

At Cincinnati last year it was estimated that 50,000 persons gathered on the two sides of the Ohio to witness the regatta. Thousands viewed it at Louisville. Interest in the event this year at these two points is even now at fever heat. The fact that Capt. Jim Howard, owner of the "Laura Jane," the "Little Captain" and other fast craft, is a builder of motor boats at

Howard's Shipyards, Jeffersonville, Ind., naturally adds interest to the sport here and accounts for the "chug-chug" of countless motors greeting the ear above the falls from early morning until late at night during the entire season.

Clarence Walker, a pioneer among the motor "fans" from a river standpoint, and Prof. E. H. Mark, president of the Louisville Motor Boat Club, are at work on the annual regatta now. Cincinnati enthusiasts are doing likewise. The motor boat packet, plying between Louisville and Madison, Ind., is another evidence of the practical adaptation of the motor to the new river conditions.

Both commercially and from the standpoint of the motor sportsman, this vast undertaking is of far greater importance than we realize or, in fact, than we can appreciate. The Ohio River is the geographical highway from the East to the Mississippi River,

and it is surprising that this fact has not long since been realized and the necessary appropriation made for its development.

From a standpoint of the motor boatman, and after all a pretty important standpoint nowadays, the outlook is bright indeed. Dubuque and Peoria have become more widely known within the last few years as the most prominent motor boat racing centers in the country than they have through any other connection, and their natural advantages for this sport are in no way superior to those that will be enjoyed by score of cities along the Ohio when the "Nine-foot stage" is completed.



The section of the Ohio from Pittsburgh to Cairo where the work is being carried on.



The Louisville and Portland Canal, which will be widened to 200 feet.

The Racing Outlook for July.

The Halifax Reciprocity Race and the Boats to Compete for the Commodore Hearst Trophy.
The Remarkable List of Fast Ones that will be Seen at the Dubuque Regatta.

By Harry Davis.

SO far this season nothing has happened in the racing line worthy to be called a National event, but the outlook for the present month is a busy one, and among the events scheduled the most important are the annual race from New York to Albany and return, to be held on the first by the New York Motor Boat Club; the Cape May race also to be held on the first, by the National Yacht Club; the Pacific International Race of the Pacific International Power Boat Association, starting from Vancouver on the second; the New England Engine and Boat Association races for the championship of New England, at Boston, July 4th; the Annual Regatta of the Mississippi Valley Power Boat Association, at Dubuque, on the fourth, fifth and sixth; the Yachtsman's Club Ocean Race from Atlantic City, July 8th; the Marblehead Race, July 14th; the Halifax Race July 22d, and the Western Power Boat Association on the 25th and 26th, besides many other events.

As the first ocean race of the season, the Bermuda race had been looked forward to, but, due to no fault of the committee in charge, there was a shortage of entries, and the race was postponed 'till September. Many of the clubs, however, started the season down the ways with racing events, and although there was no racing of general interest, the month was a busy one.

Interest now centers on the Halifax race as the biggest ocean event of the year. This 460-mile contest, to be started from the anchorage of the National Yacht Club in Gravesend Bay on the 22d has already brought forth four entries, and promises from a number of other owners.

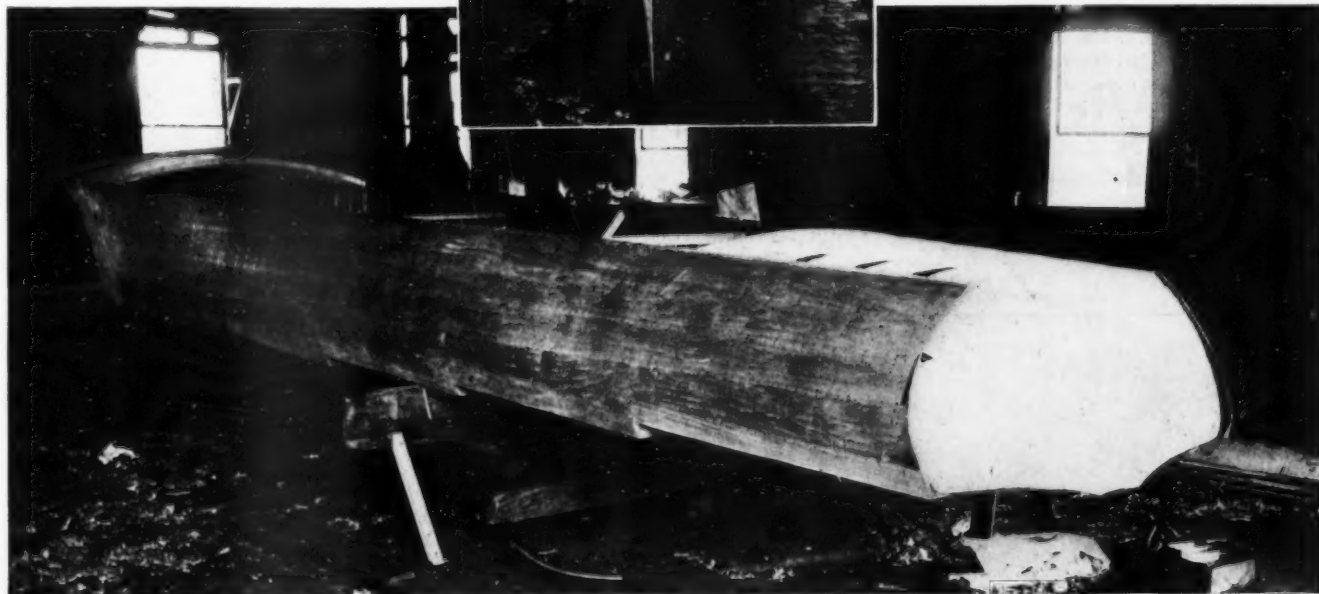
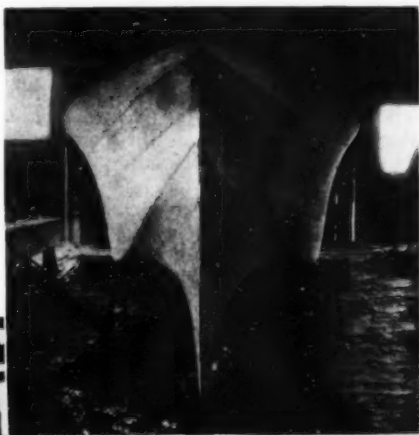
The boats entered in this new race for the Commodore William Randolph Hearst trophy, and which shows every indication of becoming the big annual ocean race, are the following: Eronel, owned by Samuel Cochrane; Coronet, belonging to F. G. Fleischmann; Caroline, owned by Mr. Frank Denis; and a new forty-footer for H. C. Duell, of the New Rochelle Yacht Club. Three of the boats entered have demonstrated their fitness for long-distance racing. Eronel is the winner of last year's Bermuda race. She measures 45 feet over all, and her motor is a 25-h.p. Craig; Coronet is a new 48-footer, and though she has not appeared in any race, she has shown her speed and general ability in her trial spins in local water. Caroline was one of the contestants in the New York-Havana race last year, and with her new engine, a 75-h.p. Holmes, should make a creditable showing.

The other boats for which entries are expected in the next day or two are, Boffin II, a new 40-footer, owned by R. S. Mills, of the National Yacht Club; Snap Shot III, J. B. Lindemann's new 40-footer; Berneyo, winner of the New York-Havana race, and owned by S. W. Granbery, who has promised the race committee that he will enter his boat if he is able to be here at the time of the start. Commodore William E. Brigham, owner of Caliph; H. S. Peters, Skipper of the Loan-taka and a number of others of the Philadelphia section are contemplating the cruise, and Robert Henke, of the National Yacht Club, will enter a new 72-footer as yet unnamed.

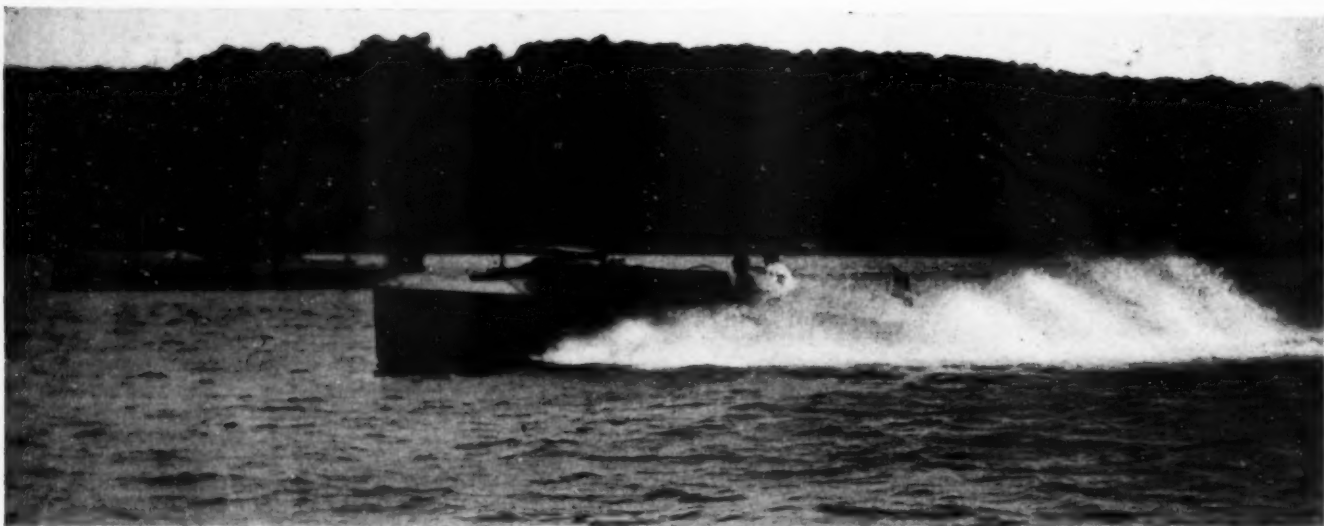
Many of the owners of eligible craft, it is said by the committee, have been led to believe that a race over this course would be a constant run through fog and other dangers, and these rumors have led the writer to investigate the matter.

The course from New York to Halifax is not within the fog zone. Some fog may be encountered off Nantucket, but this is of only a few hours' duration, beginning usually toward night, and disappearing before daybreak. The writer interviewed an official in the weather bureau, who is recognized as an authority on this subject, and he attributed fogs in the Nova Scotia district to the Gulf Stream meeting the Labrador ice. These start in April and continue until about July 1st, and during this period a number of hours each day are likely to be foggy. "The race course," said he, "is well guarded by buoys, lights, etc., and the weather during the latter part of July will be good. The chances for a gale are two out of one hundred, and the chances for a calm will be fourteen out of one hundred, with prevailing winds west by southwest. About the first of July is considered the turning point in the fog season, and after this time fog becomes scarcer and scarcer until, in the latter part of August, it has entirely disappeared. The section lying between New York is not to be reckoned in the fog zone, that is, the greater percentage of fog is met beyond Halifax. All things considered, including the directions taken by the Labrador ice this spring, it is fair to say that the possibility of fog at the time of the race is one chance in four."

The steamer Lapland, of the Red Star Line, which arrived in New York from Antwerp, June 10th, met little fog, and this beyond Halifax. The steamer Arabic, of the White Star Line, which arrived on the 11th, reported no fog. The steamer Columbia, of the Anchor Line, struck a slight fog east of Mon-



Red Top III, W. E. Hughey's 35-foot Faubert hydroplane nearing completion. She is to be powered with a special 300 h. p. Lamb engine.



Nameless III, the Hydroplane just completed for Messrs. Melville & Heckscher, as she appeared on her trial trip.

tauk Point which lasted but a short time. The steamer St. Louis, which arrived on the 10th, reported ten hours fog. The captains of all of the steamers plying between New York and foreign ports file a report of weather conditions encountered, with the Weather Bureau, and from the compilation of these reports it is plain that the danger from this source has been greatly exaggerated.

The writer interviewed a yachtsman who has spent over fifteen years on the regatta committees of many boat clubs. This racing enthusiast has made the trip to Halifax a number of times; in fact so many times that he has lost count. In speaking of this run he said there is no danger of a skipper running into trouble on this trip. He can keep out of the lane of steamers a hundred miles if he will use his compass, and the only thing he may meet on the trip is a lot of stragglers and fishermen.

In the West excitement runs high. The annual regatta of the Western Power Boat Association will be held at Dubuque, July 4th, 5th and 6th, and never before in the history of Dubuque has there been such an event as this year's regatta promises to be.

For the first time on an inland waterway will be seen boats from the Atlantic, the Hudson, the Great Lakes and from the waters west of the Mississippi to compete for the speed title with boats built and owned on the inland rivers of the Mississippi Valley. It will be the first real test of speed between boats representing the different sections and waters and for the first time also will be gathered together in an open regatta a large number of high-powered hydroplanes. Six of the most noted hydroplanes in the country will probably be on hand. Disturber II, a 16-cylinder Fauber hydroplane, owned by Commodore James A. Pugh; Dixie IV, owned by Messrs. Burnham, Melville and Heckscher; Vita II, owned by J. Stuart Blockton; Yankee, owned by Albert E. Smith, and Red Top III, owned by W. E. Hughey, are expected. Aside from the larger and higher powered hydroplanes, a number of like craft in the twenty-foot class are entered, among which will be boats owned by the Emerson Engine Co. of Alexandria, Va.; Pierce-Budd Co. of Bay City, Mich.; E. P. Gould of Chicago, Ill.; and La Crosse, of La Crosse, Wis. Added to this list of hydroplanes, other noted boats will be there, such as Comet, Hoosier Boy, Teaser, Eph, Missouri, and E. S. F. With such

a list of boats some phenomenal speed may well be expected.

The course at Dubuque is an ideal one for the trial of these high-speed flyers. The water is deep, well sheltered and free from obstructions of any sort. It is five miles in length and lies right in front of the city proper, so that not only from a racing standpoint but from the spectators' viewpoint as well, it is ideal.

It is probable that the results of the racing at Dubuque will furnish a good criterion as to the boats that will be chosen as the American team of defenders for the Harmsworth trophy.

Several days ago a number of boat clubs of the Mississippi Valley Association started on a cruise to Dubuque. Burlington, Davenport, Peoria, LaCrosse, Rock Island and Muscatine all contributed boats, and enthusiastic motor boat men from all over the country are now heading towards the Mississippi.

Up to the time of going to press, three entries have been received for the Marblehead race, scheduled to start from Huntington Bay on the 14th. These are Kitsix, the new 33-footer owned by Frank D. Gheen; Inevitable, a 40-footer belonging to Alexander Johnson; and Sentinel, a 36-footer, which has just been completed for Vice-Commodore Samuel Cochrane of the Bensonhurst Yacht Club.

It is still too early to forecast with any degree of accuracy the regatta of the Western Power Boat Association at Peoria on the 25th and 26th, but a retrospect of the past events held at this place, and in the light of a certain truth about rolling stones and moss, we can safely conclude that it will be all that the hustling organization behind it anticipates.

We hoped to be able, at this time, to tell lots of interesting things about the British International Cup Defenders, but an unforeseen delay makes it impossible to say much more than has been said before. A machinist's strike has temporarily held up several of the motors so that, while the hulls in all cases are practically finished, little can be said as to the performance of the boats.

Nameless II, the 26-foot hydroplane owned by Messrs. Heckscher and Melville, was recently tried out by her builders, the Atkin-Wheeler Co., and a photograph taken at this time is shown above. Furlong, another 26-footer, designed by Victor Emerson, Alexandria, Va., has also made a sensational debut, reeling off something over 40 miles per hour, and she is also shown at the bottom of this page as she appeared at that time.



Furlong, the Emerson Hydroplane, making her debut at something like 40 miles an hour.

Developments on Puget Sound.

Opening the Season with the Annual Memorial Day Long Distance Race for the Doman Cup.
A Description of Corsair, the Interesting Dark Horse, Winner of the Race.

By Chester L. Wynn.

MEMORIAL DAY to the Puget Sound yachtsman in these days means a day spent on the water and the running of the annual Doman Cup race, besides a myriad of regattas in the numerous ports that front its shores. The Doman cup was carried away in the first running in 1910 by Marana, of Tacoma, owned by Commodore B. F. Jacobs, of the Tacoma Yacht Club. This year it was a dark horse that came across the line with three of the best boats in the Northwest Pacific not five minutes behind. Corsair, also owned by Commodore Jacobs, and a replica of the famous Bermuda and Havana racer, Ilys, was the winner.

Corsair is the most recent addition to the fleet of Puget Sound and her winning of the Doman cup race is somewhat remarkable in view of the fact that she had only been tried out a matter of six hours' actual running time before entering the contest. The best of the motorboating craft in the section were lined up opposite the Tacoma Yacht Club float this year when the starting signal was given. Corsair untried and unknown, so new she creaked and with a 24 horsepower Buffalo engine, was pitted against Soya, with 60 horse, and a many time winner in days gone by, On Time, with 45 horse, Honey Boy, with 48 horse, and a half dozen others that were powered much above her. Corsair's newness militated against her in another way in that she sat high out of the water and had not had time to find her true level. This hurt her rating to some degree, as it is certain that all boats that have been in the water for six months will get a better show in their water line measurements than when they are first put over.

Never has Puget Sound seen a prettier or more exciting race than was run over the 42 mile course by the contestants for the cup and the finish was the closest that has ever been recorded in the Northwest. Some fifty minutes separated the boats as they left the starting line in Tacoma harbor in accordance with the Pacific International Power Boat Association methods of measurement and starting and the neat manner in which the rule works out was shown by the finish. When Corsair rounded the stake boat in Seattle harbor, thus ending the first lap in the race, she was just 12 minutes ahead of On Time, which took down the second prize. From that time on and down the west passage of the sound it was a contest in navigation and a show of knowledge of the tides. When the boats turned into Commencement Bay at Tacoma it was a question as to which boat would survive the pace and Corsair came in the winner by a scant four minutes over On Time, which was piloted by Commodore W. H. Starrett, of the Seattle Yacht Club. One minute behind On Time was Soya, winner of last year's long distance race to British Columbia, and 20 seconds later Honey Boy crossed the line. The corrected time of the entire list of entries is as follows:

	Rating.	Start, A. M.	Finish, P. M.
Corsair, Tacoma	42.4	9:06:32	2:46
On Time, Seattle	45.5	9:24:16	2:50
Soya, Seattle	53.9	9:57:28	2:51
Honey Boy, Seattle.....	50.6	9:45:53	2:51:20
Laura H., Seattle	45.9	9:26:25	3:01:30
Sans Souci II, Seattle....	44.5	9:19:28	3:12:10
Lady May, Seattle	49.4	9:41:06	3:17
La Kumango, Tacoma ...	35.10	8:19:43	3:35:15
Rhoda Grace, Tacoma....	44.	9:16:57	3:43
Nightingale, Seattle	32.6	8:00	3:54
Green Pup, Seattle	44.5	9:19:28	4:05:10
Fannie M., Seattle	41.5	9:03:40	4:17:30

Aside from the fact that she was victor in the first race that she entered, Corsair is an interesting boat. While an exact duplicate of Ilys as to her hull, her outboard profile shows different lines because she is equipped with a pilot house, which is so necessary in the Puget Sound waters. Commodore Whitaker, of Philadelphia, would probably demur if his designer, Thomas Bowes, would suggest the placing of a house on his trim racer. Bowes himself did not fancy "spoiling" his lines by putting a house on Corsair, which he also designed, but with an owner who knew what he wanted the architect went ahead and figured it in his design, and the result is that instead of breaking into the "outboard" the raciness has been somewhat accentuated by the added height, and Corsair is just as trim a little ocean cruiser as could be desired.

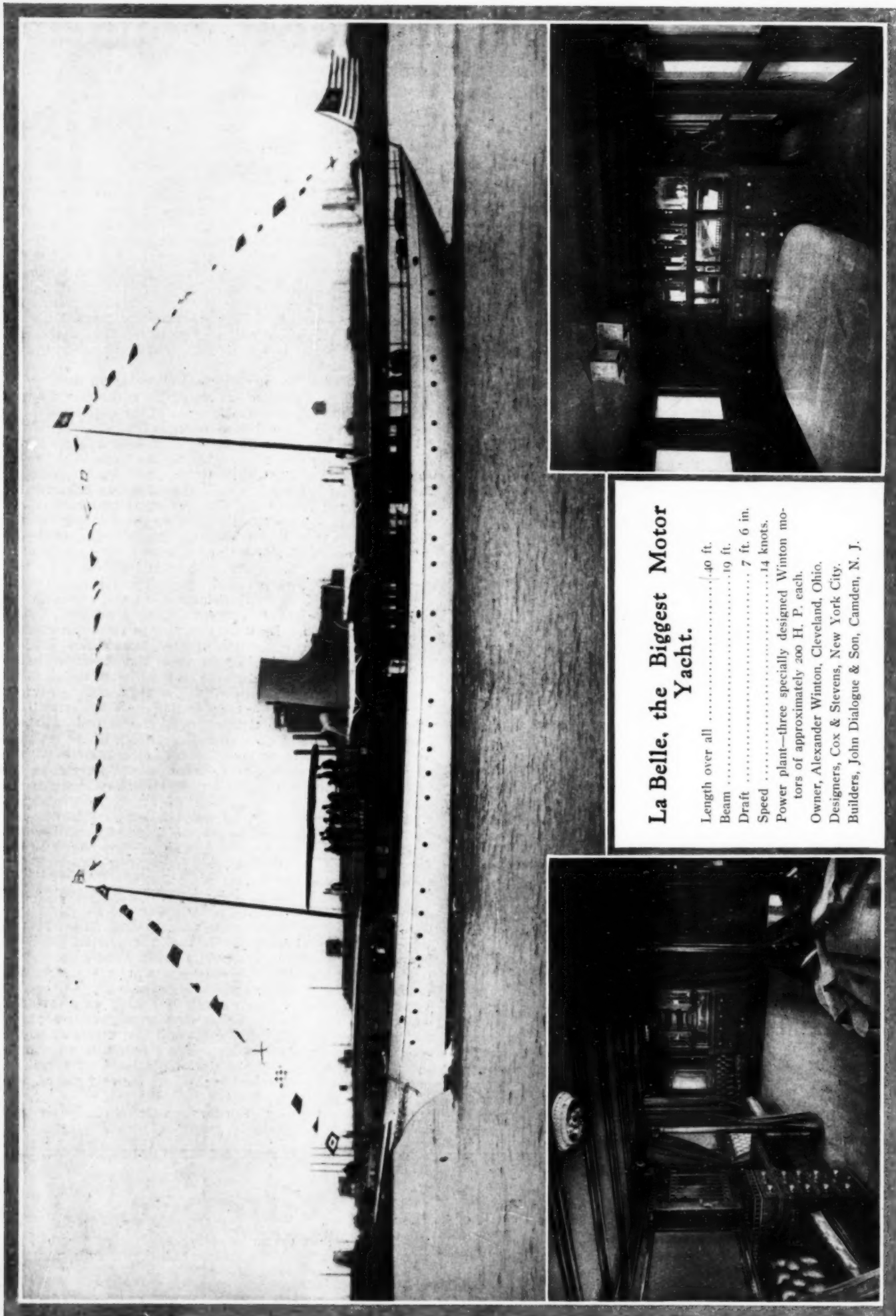
Instead of being in any way objectionable on the type of boat the house on Corsair has shown its advantages already. It is located directly over the forepart of the engine room and has a drop of 16 inches below the main deck level. In front it rises 33 inches above the raised deck level and the raised deck is practically carried straight into the house in the shape of a mahogany table or shelf which, located as it is in the forward end of the house, serves admirably as a place for the manipulation of charts, etc. In the house two berths have been built and it thus affords quarters for a larger number than Ilys. As it is directly over the engine it affords an exceptional opportunity for making Corsair a one-man control boat, which it is. The spark, reverse and throttle can all be controlled from the house and for general adaptability and convenience in all kinds of weather the departure from the lines of Ilys have proven successful.

It might be expected that the dropping of the house into the engine room would cause lack of head room there. It only takes up the forward half of the room and the after end of the engine where the real work has to be done has head room of over 6 feet. Forward this is reduced by 16 inches, but instead of being objectionable this drop has served another purpose in that it takes care of the switchboards and spark coils and brings them within easy reach of the engineer as they are appended to the bulkhead immediately above the engine. The house has also served in the solving of the problem of ventilation in the cruiser classes. Corsair has a stack which leads directly up from the aft end of the engine. By opening a front window of the pilot house and also a sliding door in the aft bulkhead of the house, which affords a "cat-hole" to the engine room, a draft can be created by the forward motion of the boat, which keeps the engine room clear at all times.

A galley in the main cabin in Eastern waters would bring down all sorts of criticism on the owner and designer especially when the hot summer days came along. But there is where the galley on Corsair is located. It was not put there because there was no other place to put it. There was a purpose and that was to afford some warmth for the cabin and to make it most accessible and handy. There are few days on Puget Sound when a little warmth in a cabin would make it oppressive. Instead the summer days on the water are cool and in the spring and fall the warmth that comes from the cook stove is almost necessary. The smells that arise from the cooking are carried off in Corsair's galley by a system of hoods and a small outlet and in this way the only possible objection that might be placed against the system is entirely obviated. A picture of Corsair appears elsewhere in this issue.

The New Boat Number.

In this, the first annual New Boat Number of MoToR BoATING, we present an exceptionally large number of new motor boats. While it has been, of course, a physical impossibility to include descriptions of all the season's new boats, we have succeeded in presenting a number which we believe to be of universal interest.



La Belle, the Biggest Motor Yacht.

Length over all 140 ft.
 Beam 19 ft.
 Draft 7 ft. 6 in.
 Speed 14 knots.
 Power plant—three specially designed Winton motors of approximately 200 H. P. each.
 Owner, Alexander Winton, Cleveland, Ohio.
 Designers, Cox & Stevens, New York City.
 Builders, John Dialogue & Son, Camden, N. J.

La Belle, the Biggest Motor Yacht.

SHIPBUILDERS on the Delaware River claim the distinction of being foremost in the advancement and development of anything that tends to progression in naval construction. Buoyed with this spirit they point with pride to the latest production, the steel motor yacht La Belle, built and launched by John Dialogue & Son, of Camden, N. J., for Mr. Alexander Winton, of the Winton Motor Car Company, Cleveland, O. Mr. Winton is commodore of the Inter-Lake Racing Association and had his yacht built for cruising on the Lakes this season.

La Belle marks a new departure in seagoing yacht building, and is a distinctive step in the direction of equipping the steel yacht with motive power. She was designed by Cox & Stevens, of New York, and her lines in every way resemble the big ocean steam yacht. Her power is derived from three gasoline engines, supplied by Mr. Winton, with an additional engine for her electric light plant, and this installation affords as much room in a length of 140 feet as is found in the steam yacht of 170 feet.

The vessel is a notable one in many respects, aside from being the largest yacht of her type afloat. An important feature is that the owner allowed the architect to provide sufficient displacement to make her as good a seagoing craft as any steam yacht of her dimensions. The extra weight required to make up this displacement has been put in for the most part by making the hull exceedingly heavy, and at the same time making provision for carrying a large fuel and water supply.

The greatest criticism of almost all existing motor yachts is that, while they are good seagoing boats in the sense of being perfectly safe outside, they are of such light displacement in comparison with dimensions, being mostly on top of the water, that they are entirely too lively in a sea way, and far from comfortable.

In exterior appearance La Belle cannot be told from a modern steam yacht, having the conventional clipper bow, overhanging stern, continuous deck house, pole masts and stack.

Her dimensions are: Length over-all, 140 feet; water line, 118 feet; beam, 19 feet, and draft, 7 feet, 6 inches.

On deck the appointments are substantial and in keeping with the character of the vessel, the exterior of the continuous deck house

an unusually large dining-room, being widened at this part in order to make the room of attractive proportions, its dimensions being in the clear, 16 feet by 12 feet. The room is handsomely finished in selected hard wood.

Communication is had direct with the pantry and galley which are abaft it in the deck house. There is also a connecting door from the dining saloon to a passage on the starboard side, extending past the galley and the engine-room to the after end of the deck house, where is a large room, 28 feet by 10 feet in the clear, which can be divided by portiers into a drawing-room and a smoking-room, with toilet-room opening off it.

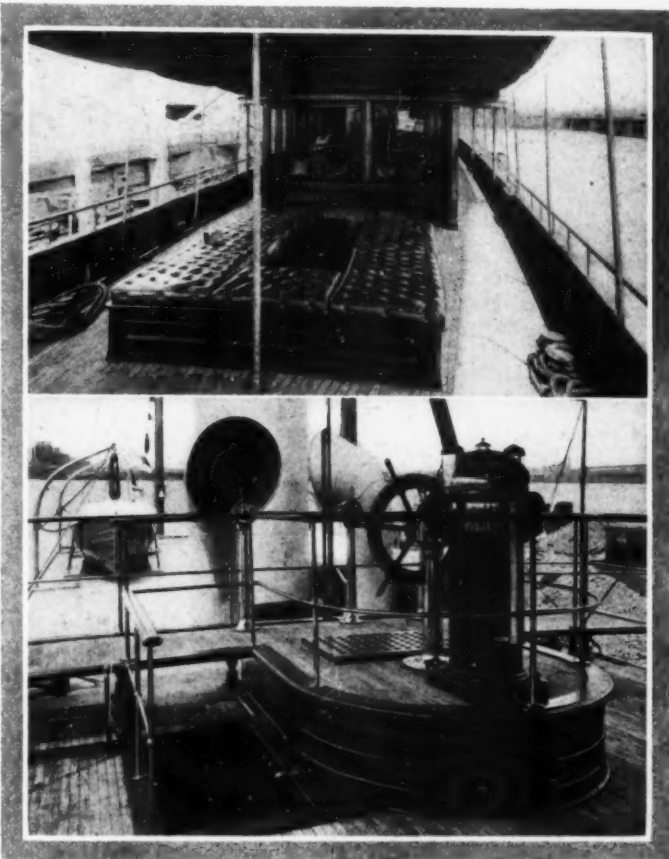
At the after end of the deck house a shelter seat is worked full width of the house, having glass windows at the sides and a roof overhead, making it a comfortable lounging place in rough weather.

While below deck, let us first pay attention to the engine-room, which with its machinery, is the great feature of the La Belle. The motive power consists of three 6-cylinder motors of 200 h.p. each. The center motor is the one which will be depended on for ordinary cruising purposes. This motor will operate the middle propeller when under ordinary cruising speed. When extra speed is desired, or when maneuvering about the harbor one or the other, or both of the wing motors will be brought into play. In the case of incapacitation from any cause, either of the three motors would be sufficient to propel the vessel. In the event

that the maximum speed is required, the three motors can be put in operation, giving a speed of 14 knots.

The engines, designed by Mr. Winton, are placed in the center of the vessel, in a compartment separated from the rest of the ship by watertight bulkheads. In the compartment are also the fuel tanks of sufficient capacity to allow a run of 1,000 miles without replenishment. In the same compartment is placed the electric lighting plant which is driven by an independent gasoline motor, and has sufficient

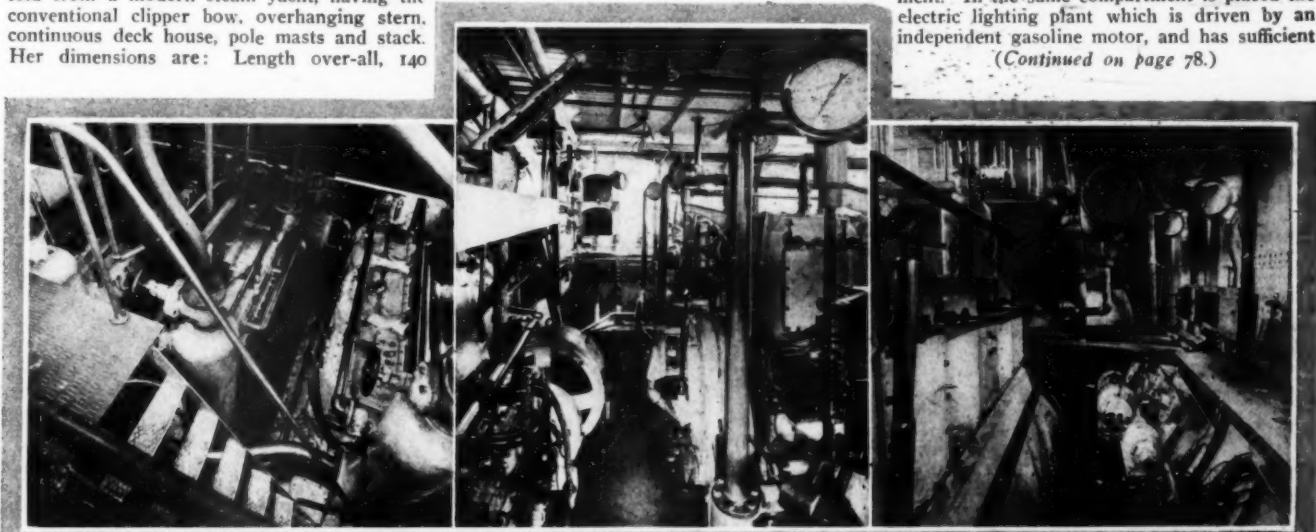
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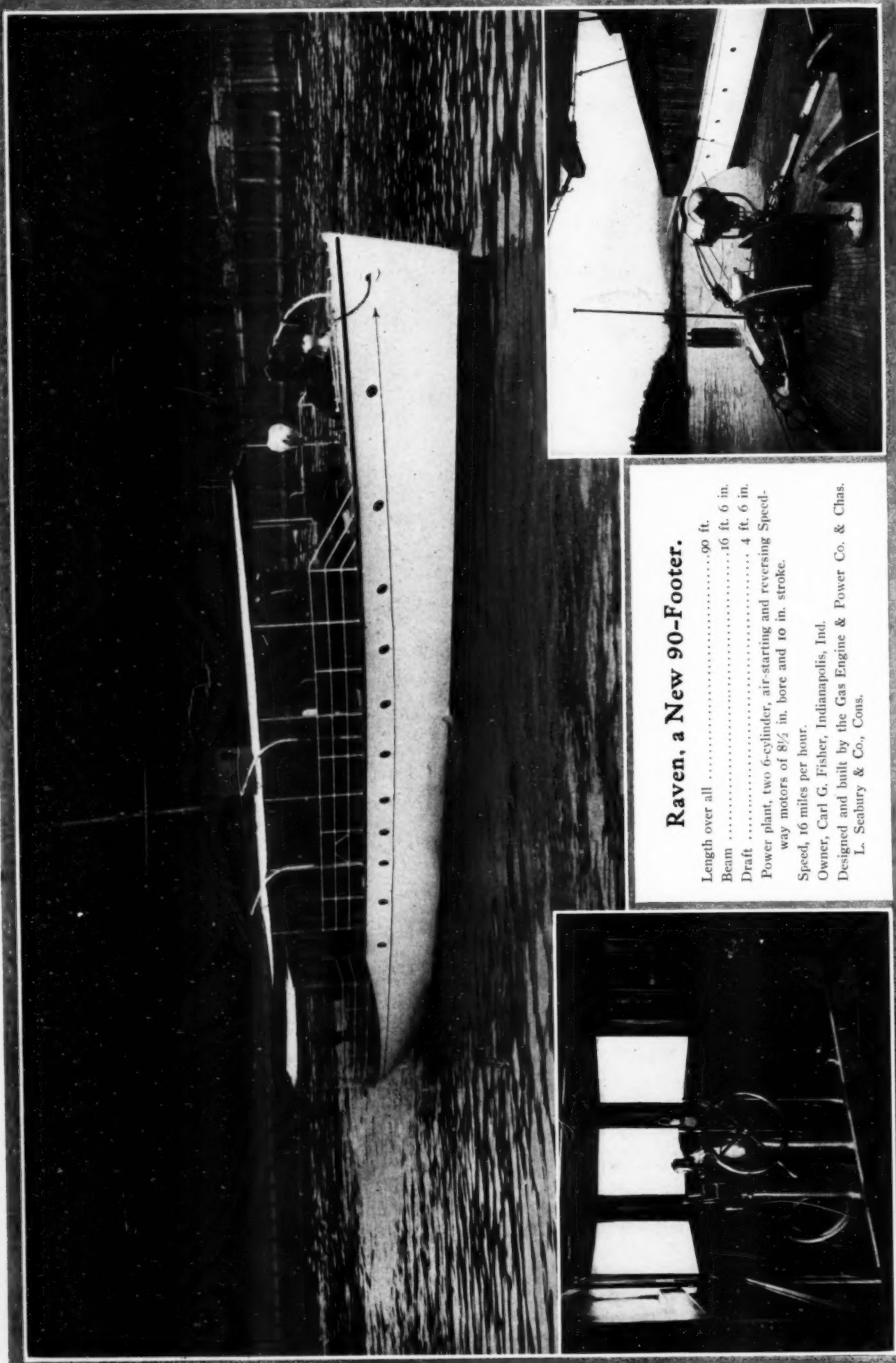
The after-deck seen from stern, and the bridge and observation decks.

being in teak, as are the skylights, companionways, hatches, rail, plankshear and other deck fittings. She is handsomely sparred, there being two light pole masts, capable of carrying sail when required, well placed in relation to the ends of the vessel and the stack, the continuous deck house extending the full length between the masts.

The deck house contains at the forward end



La Belle's motors were designed and built by Mr. Winton, and are of 200 h. p. each. The tanks shown in the left hand view are condensers in which the exhaust is reduced to atmospheric pressure before being conducted out the side of the boat.



Raven, a New 90-Footer.

Length over all90 ft.
Beam16 ft. 6 in.
Draft4 ft. 6 in.
Power plant, two 6-cylinder, air-starting and reversing Speedway motors of 8½ in. bore and 10 in. stroke.
Speed, 16 miles per hour.
Owner, Carl G. Fisher, Indianapolis, Ind.
Designed and built by the Gas Engine & Power Co. & Chas. L. Seabury & Co., Cons.

90-Footer With Deck House Aft.

As a rational combination of most of the good qualities in motor boat practice, Raven, the new 90-footer, designed and recently completed at the yards of the Gas Engine & Power Co., and Charles L. Seabury & Co., Cons., is a good example. She combines a very sturdy construction and large beam and displacement with the exceptional speed of 16 miles per hour, and in many respects is a most interesting craft.

Probably the most striking feature of the new boat is her large deck house aft instead of forward, as is usually the case. This large house is used as a dining saloon, and is the social center of the boat, while the forward house is only large enough to accommodate a very few persons. This forward house, shown to the left on the opposite page, is the pilot house in which are installed the steering wheel, binnacle and engine telegraphs. There is a seat across the after end, and as Raven's captain is a man of limited head room, he finds the pilot house a comfortable stateroom.

Raven's principal dimensions are: 90 ft. over-all, 16 ft. 6 in. beam, and 4 ft. 6 in. draft. Her bow and stern are of the canoe type, and her model below the water line has ample dead rise. In fact, her hull might be termed of the whaleboat type. Her raised deck forward extends to a point abreast the after house from which point the sides are dropped to the flush deck aft. The hull is very strongly constructed and heavily planked, and the displacement is somewhat greater than in the usual 90-footer.

Below deck there is a fore-castle forward, aft of which is the large engine room, separated by a water-tight bulkhead from the living quarters aft. In this compartment are installed the fuel tanks and an independent speedway electric light plant, which supplies current to light the boat and a powerful searchlight. The main engines are a pair of 6-cylinder air-starting and reversing Speedways of 8½ in. bore and 10 in. stroke, fitted

with two complete Bosch ignition systems, one for going ahead, and the other for reversing.

Aft of the engine room are the owner's quarters, consisting of a large stateroom, or strictly speaking, two individual staterooms with a sliding door between, which may be thrown into one large compartment extending the full width of the boat. As each is equipped with a berth, lockers, etc., they can be used separately with equal convenience. Just aft the port stateroom is a large fully equipped bathroom, connecting both with the

again, found that this compartment occupied the after part of the boat, and was completely bulkheaded off from the living quarters. A sort of trunk seat at the after end of the deck house furnished ample ventilation for this room, which contained not only the culinary necessities, but a specially designed hot-water plant.

As was said above, the after deck house is the social center of the boat, and it was furnished with this in view. There is an open fire-place and piano, as shown in the right-

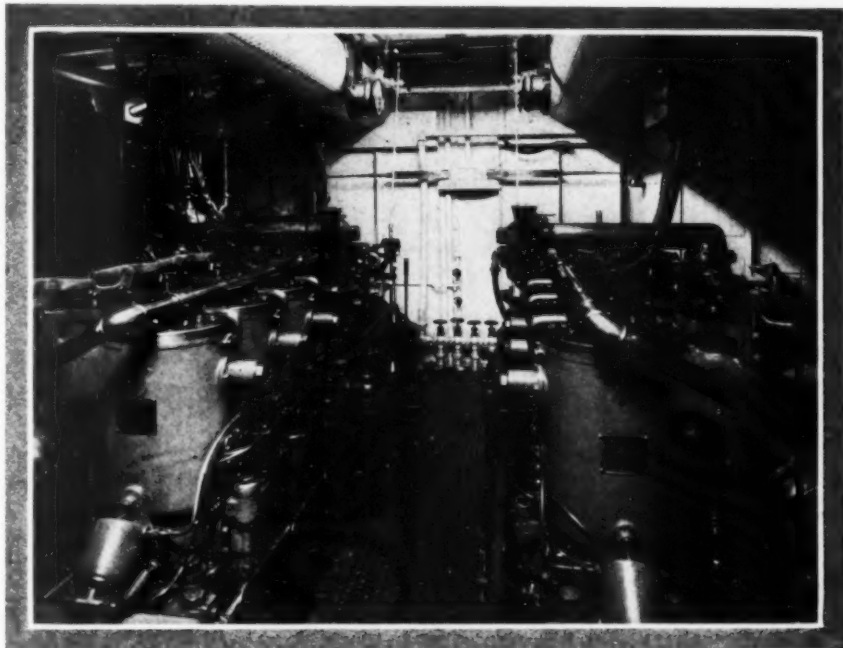
hand photograph on this page, and there are a folding table and seats along either side, which may be used as berths when required. This room is in direct communication with the galley below by a dumb waiter.

A glance at the pictures will show that the decks are roomy and are not crowded enough forward to make the handling of lines and ground tackle uncomfortable or dangerous. The raised deck is protected for nearly its entire length by an awning on stanchions, as is also the after deck.

There is a growing tendency towards heavier construction for cruising motor craft, and this is well, as the flimsily constructed boat must needs be ballasted anyway to make her seaworthy, and her depreciation is apt to be excessive.

Raven carries a tender that is herself worthy of comment, and right here the writer suggests that she be called Lenore. She is 19 feet over-all, of lap strake cedar planking and is trimmed in mahogany. She is equipped with a 4-cylinder, 4 in. x 4½ in. Speedway motor, with the Bosch high tension system of ignition, and has done in the neighborhood of 16 miles an hour, which speed is equal to that of Raven herself.

So it will be seen that Raven is somewhat out of the ordinary run of large motor craft. Her original features, however, are thoroughly practical, and her owner should never have occasion to "quoth" that classic phrase of the boat's illustrious predecessor, "Nevermore."



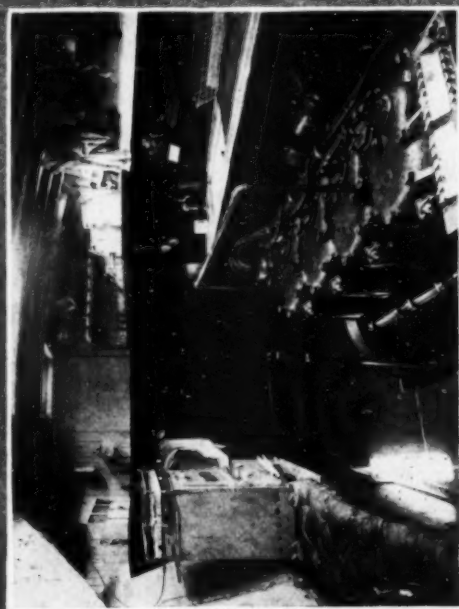
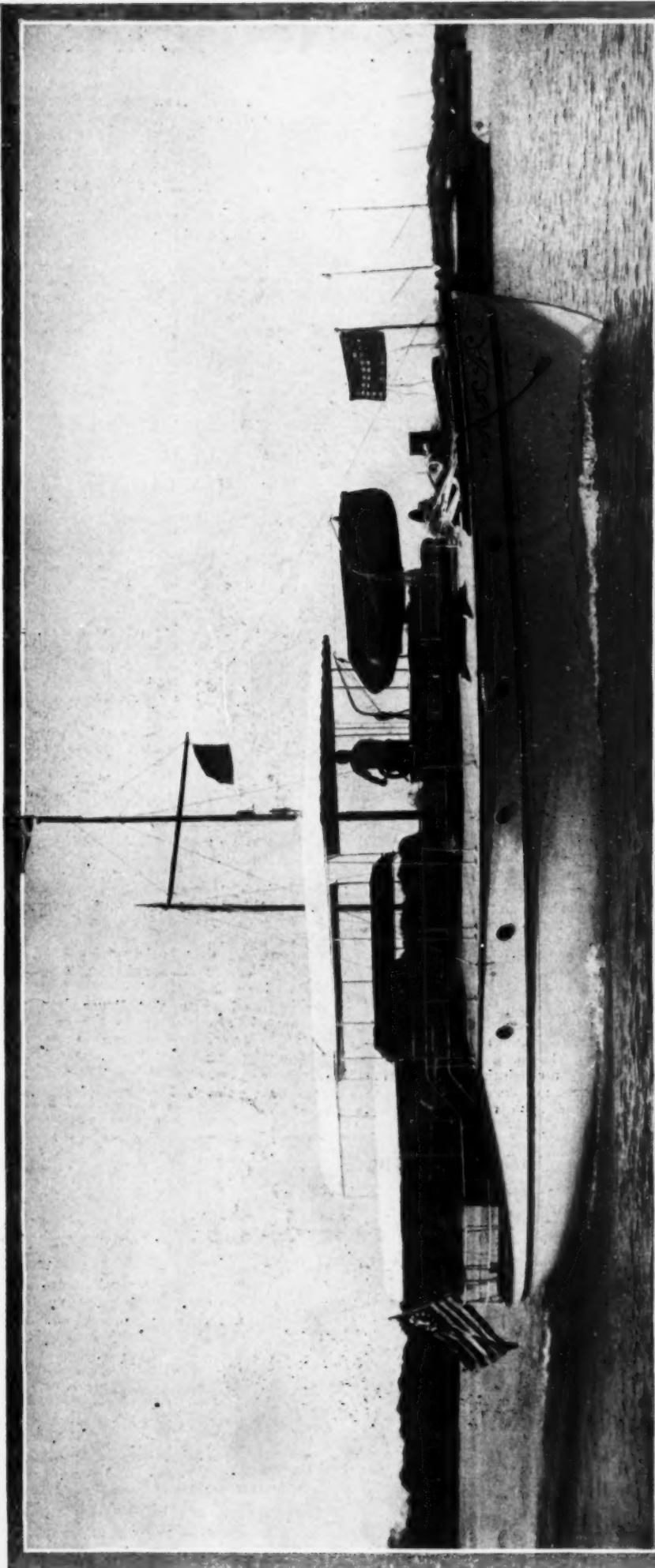
The brace of 6-cylinder Speedways drive Raven 16 miles per hour.

room and with the passage amidship; and occupying the space to port is a toilet-room. Aft of this toilet-room is another single stateroom. The after living-room is ingeniously arranged so that it may be used as a saloon or as a large state-room, there being a berth on the starboard side, and a large transom to port. When used as a state-room, it may be so curtained off that its occupants need not be disturbed by anyone passing between the companionway and the forward quarters. Aft of this room is a large locker, so large in fact, that it might itself be used as a state-room—say for the poor relation.

On being shown through the boat the writer at this point began to wonder where the galley might be, and upon reaching the deck



The companion way and skylight forward of the pilot house and the interior of the deck house aft.



Elithro, a Raised Deck 55-Foot Cruiser.

Length over all	55 ft.
Beam	13 ft.
Draft	3 ft. 6 in.
Motor....40 H. P. 4-cylinder Lamb, equipped with Bosch dual ignition system.	
Gasoline capacity	125 gallons
Speed, 11 miles per hour.	
Finish of cabin trunks and interior, mahogany and white enamel.	
Designer, Morris M. Whitaker. Builders, Bath Marine Construction Company.	



Elithro, a Raised Deck 55-Footer.

ELITHRO was designed by Morris M. Whitaker of New York City, and was recently launched by the Bath Marine Construction Co., and delivered to her owner, Mr. J. K. Robinson, Jr., of New York City. She is 55 feet over-all, by 15 ft. beam, and 3 ft. 6 inches draft, and is of that particular raised deck type, characteristic of her designer. Her motor is a 40 h.p., 4-cylinder Lamb, equipped with the Bosch dual system of ignition.

The hull construction is very substantial, the framing being of oak, with yellow pine stringers. The planking is of yellow pine. To secure proper seaworthiness and accommodation inside, the beam has been made greater than is usual in this type of boat, but at the same time the water line breadth has been kept down to between 10 and 11 feet, so that the boat will not be hard to drive and the speed will therefore not be impaired. The form is clearly seen in the photograph on the opposite page, which shows a wide flaring bow for buoyancy and deck room besides the ability to throw off spray. The freeboard is ample and the under-water body shows considerable dead rise from bow to stern which will make her an easy roller in a seaway. Her speed is in the neighborhood of 11 miles per hour.

Below decks there is a combined engine room, a galley and crew's quarters forward, shown in the illustration on this page. This is separated from the forepeak by a watertight bulkhead, and there is a crew's toilet and lavatory forward. On the port side of the engine room there are two folding canvas berths, and on the starboard side are the sink and drain board, under which is installed the dynamo. Forward on the port side, is the alcohol range, which was supplied by the Alcohol Utilities Co., and opposite it is the refrigerator. It will be seen from the photograph that this compartment is exceptionally roomy and well lighted by the trunk skylight above.

This skylight serves as a protection for the steerman's position and has the binnacle and wheel mounted at its after end. On the starboard side of this is the crew's hatch to the engine room, over which a grating is fitted to prevent accidentally stepping through in a seaway. Over the icebox is another hatch for ventilation and for lowering ice, obviating the necessity of carrying it through the engine room.

Forward of the engine and under the floor is a large box for carrying canned goods and

other provisions. The whistle tank is located in the forepeak, and kerosene oil and lubricating oil are carried in tanks in the engine room.

Aft of the engine room is a double bulkhead separating it from the main cabin, but provided with a door for easy communication between the two rooms. This main saloon is 9 ft. by 13 ft. and has transoms on either side, those to port being of the extension type. This compartment is also fitted with a large dining table, under which there is a space for storing suit-cases, and drawers at the after end for cutlery, table linen, etc.

it sufficient to stow a steamer trunk. Back of this berth is space for the storage of bedding.

At the after end of the passage is the owner's stateroom, which is lighted by large windows in the trunk sides. This room has a large double berth on the port side with space beneath it for suit-cases, on the starboard side is a transom with lockers beneath it and behind it and at the after end of the room is a bureau, over which is a large plate glass mirror with large lockers on either side. The door leading into the passage has a full length mirror on the inside. The finish throughout the interior of the boat is mahogany and white enamel to insure plenty of light below.

The boat is lighted throughout by electricity supplied by a dynamo in the engine room, shown in the lower photograph on this page. The elaborate switchboard may also be seen and forms part of the very complete system supplied by the Smith-Meeker Engineering Company.

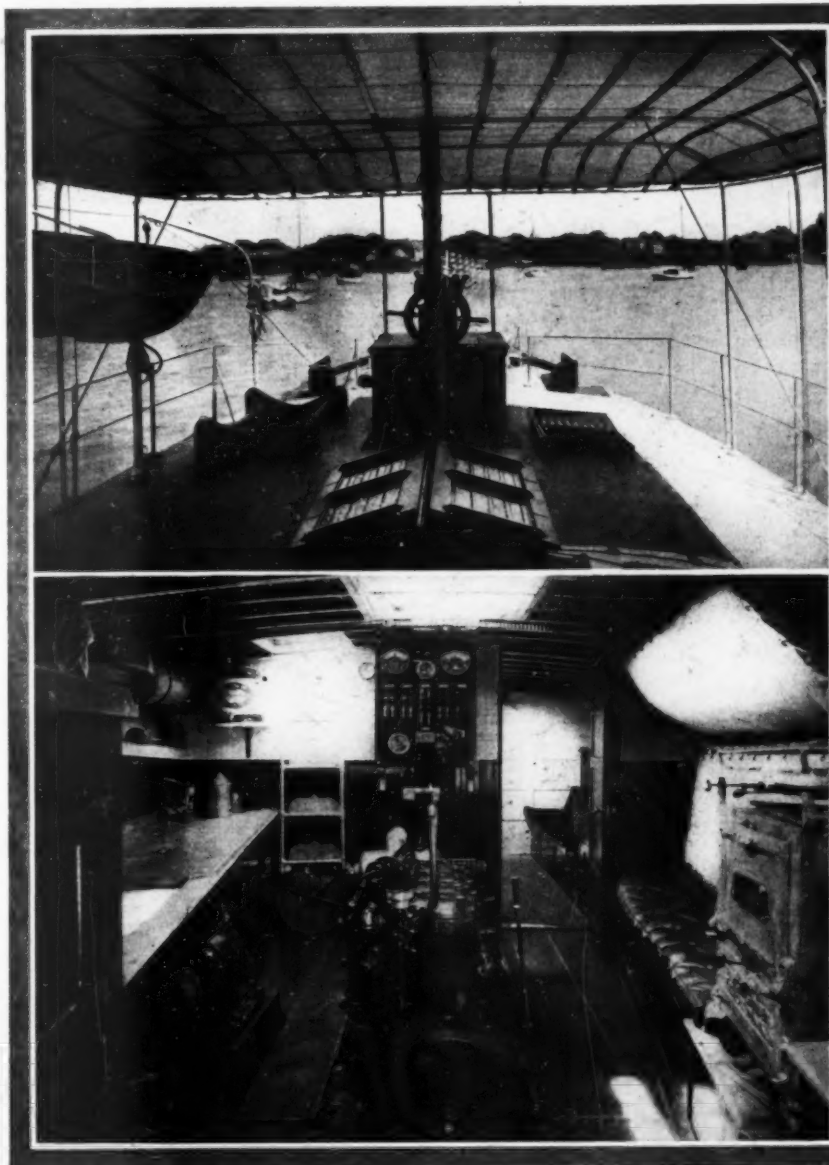
The gasoline tanks have a capacity of 125 gallons and the water tank 60 gallons, water from the latter being delivered under air pressure. The anchor equipment is liberal and businesslike and is thoroughly in keeping with such a cruiser. Both anchors are of the Babbitt type, one of 125 pounds and the other of 150 pounds with rope cables. The dinghy is 10 ft. by 4 ft., of smooth plank cedar, trimmed in mahogany.

The ample raised deck, which is unobstructed except for the skylight and trunk over the engine room, extends aft farther than the raised sides, as the roof of the cabin trunk, and this deck with the flush deck aft, provides plenty of lounging and chair space. These decks are protected by awnings supported on pipe stanchions, and their arrangement is shown

clearly on the opposite page. A signal mast is stepped amidships just aft of the steerman's position, and a searchlight is installed at the forward end of the skylight trunk.

Mr. J. K. Robinson, Jr., is a member of the Harlem Yacht Club and Elithro will sail under the colors of that organization, whose anchorage is at City Island, New York City.

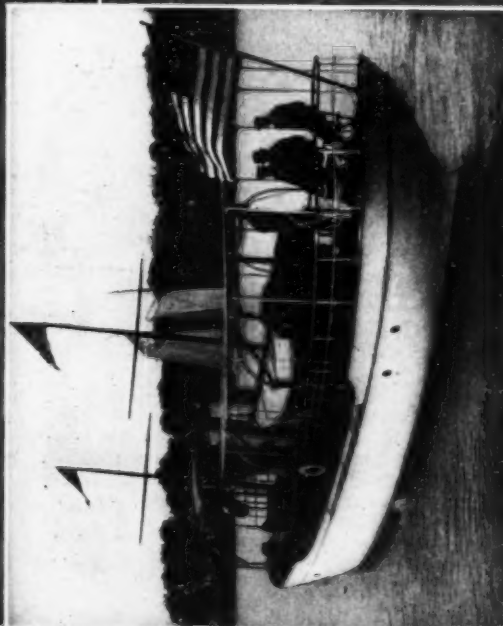
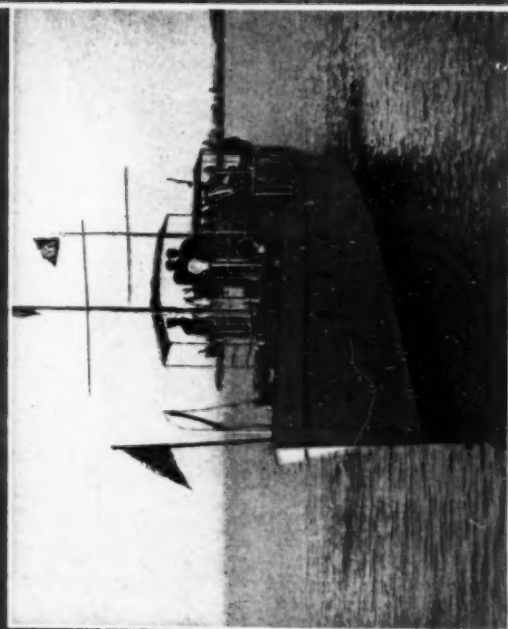
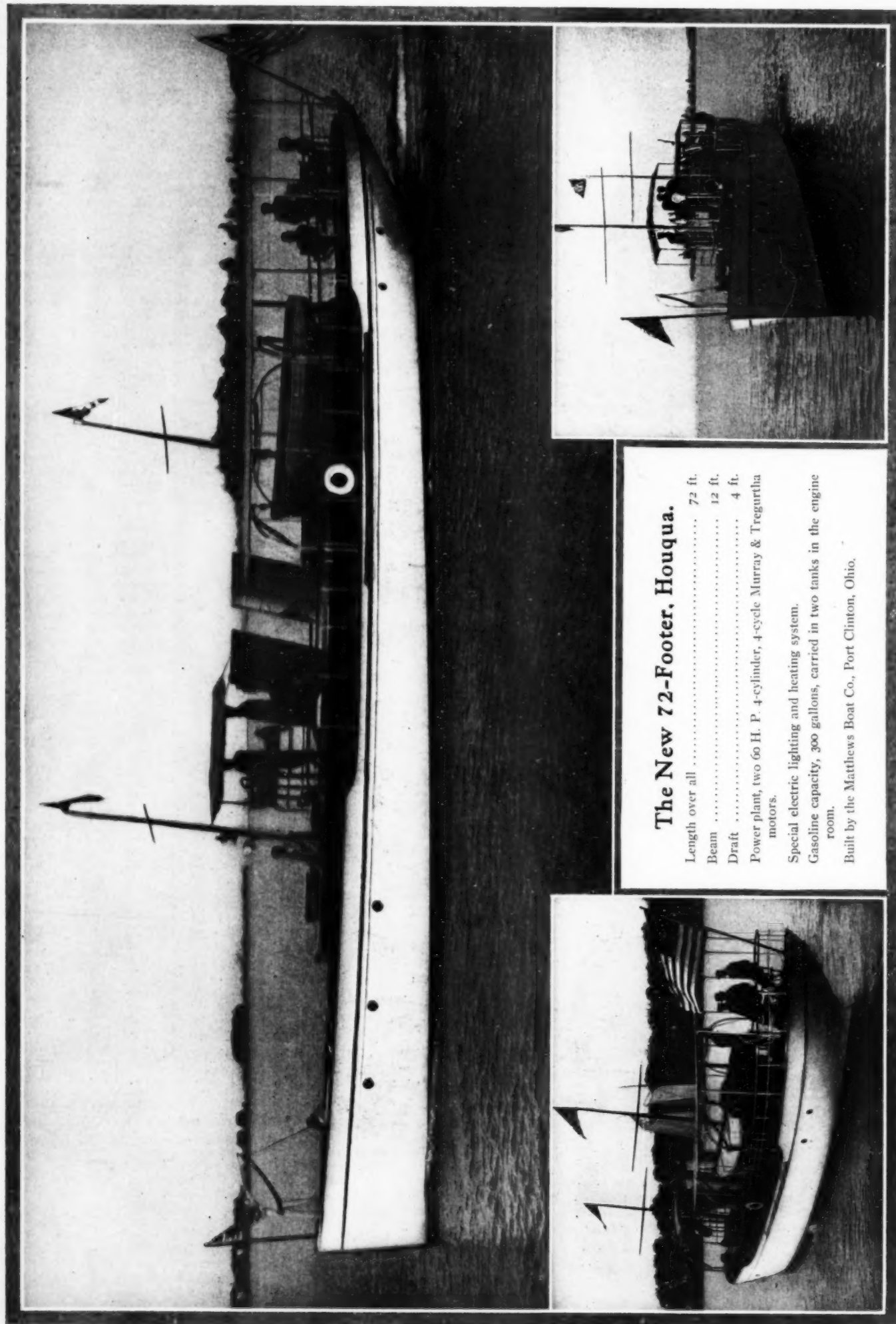
Withal Elithro is a rational cruiser in which her owner should be able to cruise in any waters. Her clear deck, high freeboard, dead rise and well designed ends all make for seaworthiness, safety and comfort. She is a credit both to her designer and her builders.



Above is shown the forward deck and steerman's position protected by the trunk skylight over the engine room; and below, the engine room and galley, with the 40 h. p. Lamb engine.

The space behind the transoms on each side is converted into lockers for the storage of bedding and the space below the transoms is always available for stowage. At the forward end of the saloon is a drop leaf desk and bookcase over the reverse gears, to which access is had through a door in the bottom.

Aft of the main saloon is a passage, on the starboard side of which is the owner's toilet room, with large lockers, and the usual fittings. Opposite this, on the port side, is a single stateroom with bureau, hanging closet, and a 30-inch berth which has space beneath



The New 72-Footer, Houqua.

Length over all	72 ft.
Beam	12 ft.
Draft	4 ft.
Power plant, two 60 H. P. 4-cycle Murray & Tregurtha motors.	

Special electric lighting and heating system.

Gasoline capacity, 300 gallons, carried in two tanks in the engine room.

Built by the Matthews Boat Co., Port Clinton, Ohio.

The New 72-Footer, Houqua.

THE trim 72-footer shown on the opposite page was built and recently completed at the yard of the Matthews Boat Company, Port Clinton, Ohio. She is 72 ft. over all with 12 ft. beam and 4 ft. draft, with a nearly plumb bow and a modified steamship type of stern. The boat is of the flush deck type, the sides forward and aft being raised somewhat to form bulwarks. There is a continuous trunk above the living quarters. This is low and is surmounted by the bridge deck forward, two signal masts and two raking stacks amidships, which together with the long easy lines of the hull, give a decided appearance of speed. In fact, one of the points of the design was to keep the top hamper as low as possible for this very effect, and also for seaworthiness. The decks are all finished in teak and the cabins in African mahogany.

The accommodations below deck consist of a crew's quarters, or forecabin forward, sleeping three men. A water tight bulkhead separates this compartment from the dining saloon, which is shown in the upper photograph on this page. The arrangement of this room is clearly shown in the picture. There are chests of drawers forward, Pullman berths on either side which, when folded, present a smooth wainscoting, but when open provide comfortable berths with springs and mattresses. Above these berths are alcoves and aft of them on the port side is a large ornamental buffet with leaded glass doors, and on the starboard side is a special folding lavatory.

The galley is next aft and extends the full width of the boat. Its equipment includes a large icebox with a capacity of 500 pounds of ice, a sink, a four-hole oil stove with hot water system, special dish racks, lockers and complete equipment. A hood is built over the stove with a ventilating pipe leading to the stack. The smoke pipe from the stove also has its outlet in the forward stack. The galley is separated from the motor room by a water tight steel bulkhead.

In the motor room next aft are installed two 60 h. p. 4-cylinder, 4-cycle Murray & Trugutha motors, with two gasoline tanks of 150 gallons capacity each. An independent electric light plant is arranged on the starboard side at the after end of the compartment. This room is also provided with lockers, work benches and a complete equipment of tools, etc. A bulkhead separates the engine room from the owner's quarters aft. It is constructed of steel on the engine room side and wood on the after side, with the space between filled with a special material to prevent the noise of the engine room penetrating to the living quarters.

In the owner's quarters there is a large stateroom with a very comfortable double berth, fitted with springs and a hair mattress, a mahogany dresser, and a large wardrobe. The finish of this room is in cream enamel with mahogany trim and furniture. The lavatory compartment adjoining, may be entered either from the owner's stateroom or

from the lobby and is equipped with special plumbing throughout. These features comprise a seat tub, with hot and cold water, lavatory, linen lockers, medicine chest, and the usual equipment. This compartment is finished in white enamel. Occupying the after part of the trunk cabin is the main saloon, two views of which are shown on this page. This room is provided with four single berths

Light and ventilation are provided by hinged skylights and the ports in the trunk sides. There are four large wardrobes in this compartment. The electric light fixtures were designed especially for the boat. The boat is heated as well as lighted throughout, by electricity.

Above decks there is ample seating space, as a glance at the views on the opposite page will show. The after deck alone will seat fifteen people comfortably. This deck, as well as the forward one, is protected by the raised sides or bulwarks, which give a sense of snugness apt to be lacking in the usual flush deck. The steersman's bridge on the trunk cabin roof is protected by a brass railing, on which spray cloths may be laced in bad weather. This deck, as well as the after deck, is protected by an awning. The controls are all brought to the steering position so that the boat, although a 72-footer, may be handled by one man.

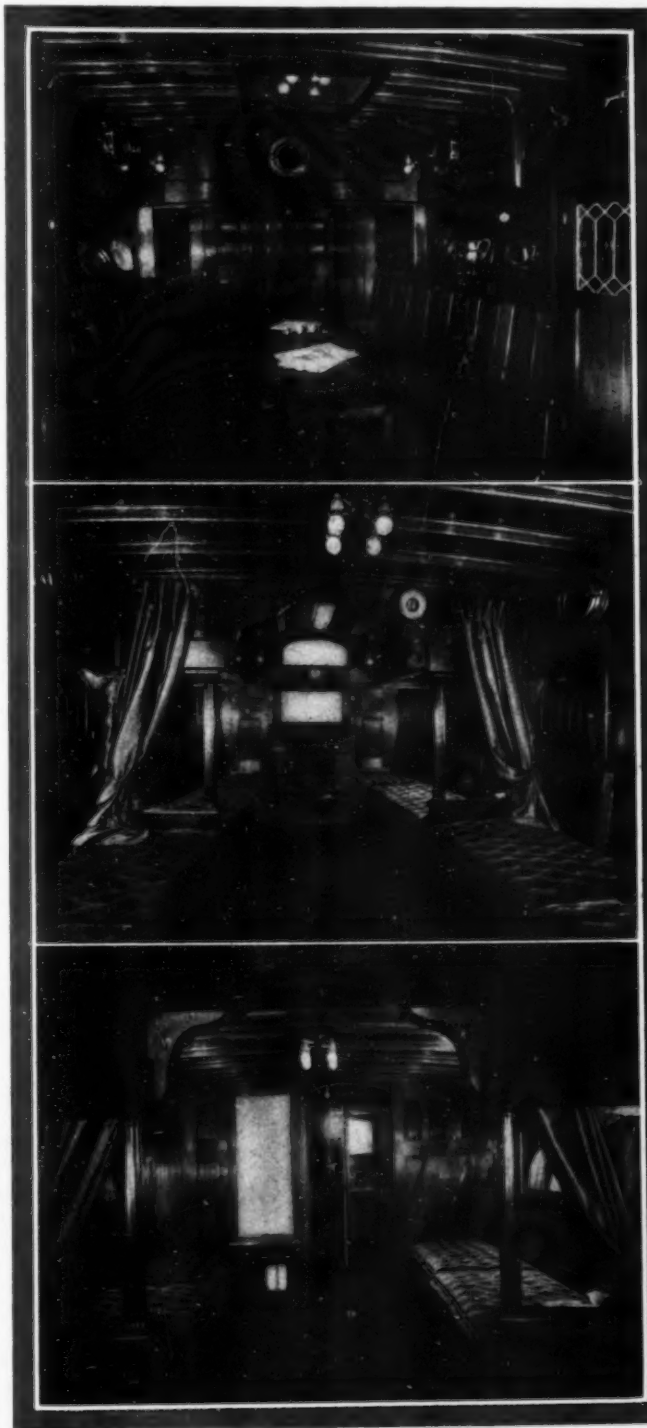
There has been somewhat of a trend lately toward the steamship type of motor boat, and this trend is easily explained as an effort to make the motor boat a more practical proposition. There is no reason why the owner of a pleasure boat should not demand as staunch and able a craft as the owner of a commercial vessel—he pays as much and should get something that will not depreciate at an abnormal rate.

Many of these "steamship" designs have failed both practically and as to appearance, for it is a delicate job to reduce a design with a consequent change in relative dimensions due to such constant qualities as headroom, and the like. But lately some mighty creditable craft have been turned out by combining the good points of the commercial vessel with the requirements of the motor boat, and after all, why not evolve new types? There is no reason why we should be bound by anything beyond certain broad principles of design generally conceded to be good.

Houqua's raised sides or bulwarks forward and aft are good points borrowed from the steamship. Her two masts are much more in keeping with her design than a single stick, and need not be as tall as the latter.

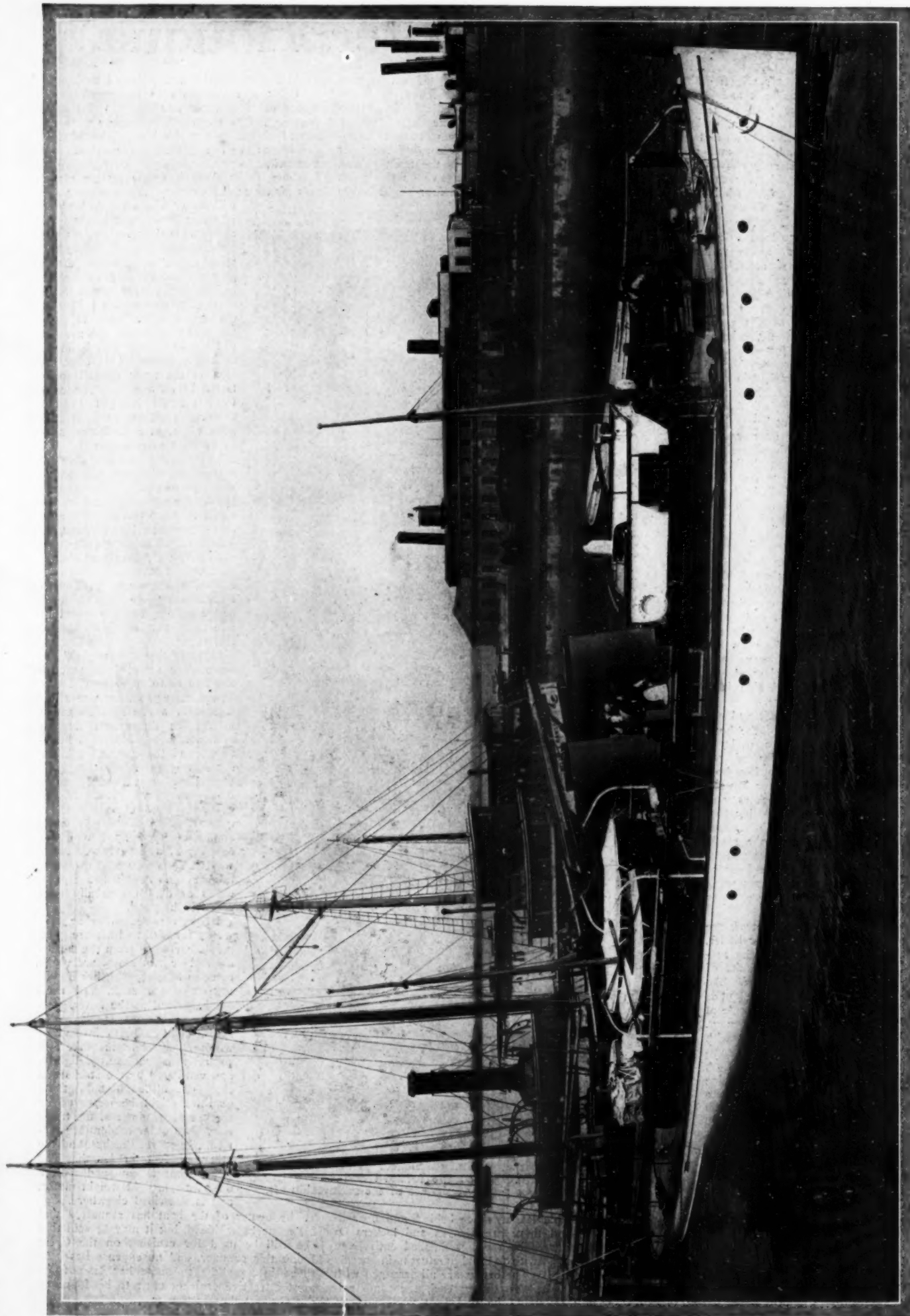
The continuous trunk amidships, with its ports instead of windows, looks businesslike and probably is sufficiently lighted and ventilated by the stacks and skylights, although both these qualities might be improved by the use of windows in the trunk side. Two cedar tenders are carried, one 10 ft. 6 inches, and the other 14 feet in length. The larger boat is equipped with a 6 h.p., 2-cyl., light weight motor, and is described elsewhere.

The owner of the boat has requested that his name be withheld, but it may be said that she will be used for cruising on the Great Lakes this summer, and no expense has been saved in an effort to make her one of the most attractive cruising craft to be found in the Great Lakes section.



Houqua's interior is most attractively finished. Above is shown the dining saloon, which occupies the forward end of the trunk cabin, and the two lower photographs are of the main cabin aft.

with ample locker space behind and beneath them, and there are alcoves and lockers on both sides. The room is finished entirely in mahogany, with special features in nearly every detail. The berths are all arranged with folding portieres, giving each the same privacy that would be had in a Pullman car.



In her design Sybilla II embodies a number of the features of the steamship, and if appearance is a criterion the combination is emphatically successful.

Sybilla II.

the Philadelphia Yacht Club, of which Mr. Betz is a member.

The boat was built and designed along new lines, and in a general way, and almost in every particular is of a different type from the ordinary cruiser of her length and displacement. Most particularly noticeable at first sight is her flush deck, with her steamship stern and plumb stem. Her deck arrangement is such that a clear view is afforded her passengers in all directions.

She is 82 feet long, 13 feet, 6 in. beam and has a draught of 4 ft. 6 in. She carries two masts, allowing a sufficient spread of canvas to meet contingencies, or to run under sail when desired. Her two stacks are a distinctive feature, giving her a steamship appearance, and yet lending a valuable service in the comfort of her passengers below decks.

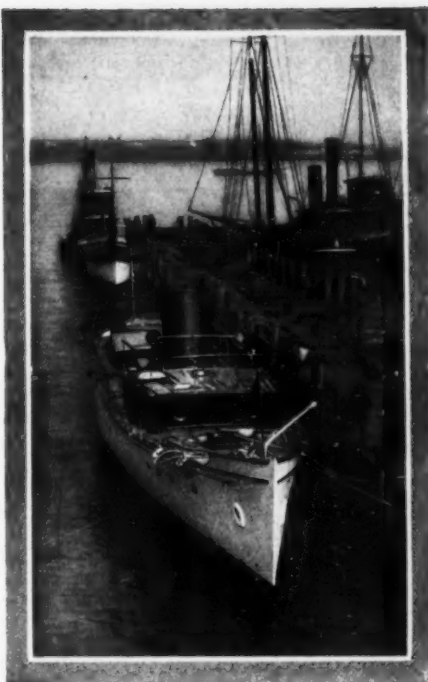
The boat is powered with an especially built 6-cylinder Craig engine of 150 h.p. The gasoline tanks, having a capacity of 850 gallons each, are installed in the engine room.

Below decks the arrangement is such as to utilize every inch of available space to the best purpose, yet adding every known feature of comfort to her owner, passengers and crew. In the after quarters is a double stateroom with lobby answering both as a passageway and sleeping quarters. Annexed is a fully equipped bathroom with all the necessary requirements, fitted to a point of luxury.

Forward of the engine room is the galley, and then comes the saloon.

To this compartment much thought was given by the designer and builders, resulting in arrangements both unique and of a space saving character. Buffets are arranged on both sides of the saloon, with a large davenport type of settee aft. Ample fresh water tanks are installed with storage space beneath.

The owner's quarters are forward and are



finished in African mahogany throughout, with just enough of ivory to give it the needed relief and to lighten its general effect. Forward of the saloon are the crew's quarters, arranged for a crew of four, or six if necessary, with a separate toilet and captain's stateroom.

She is most substantially built in every particular and arranged to accommodate ten persons in the owner's quarters. She has a separate electric lighting plant, and a hot-water heating plant.

She carries a 15-foot mahogany tender, which is swung from the port side on davits, and also a 12-foot tunnel stern dinghy.

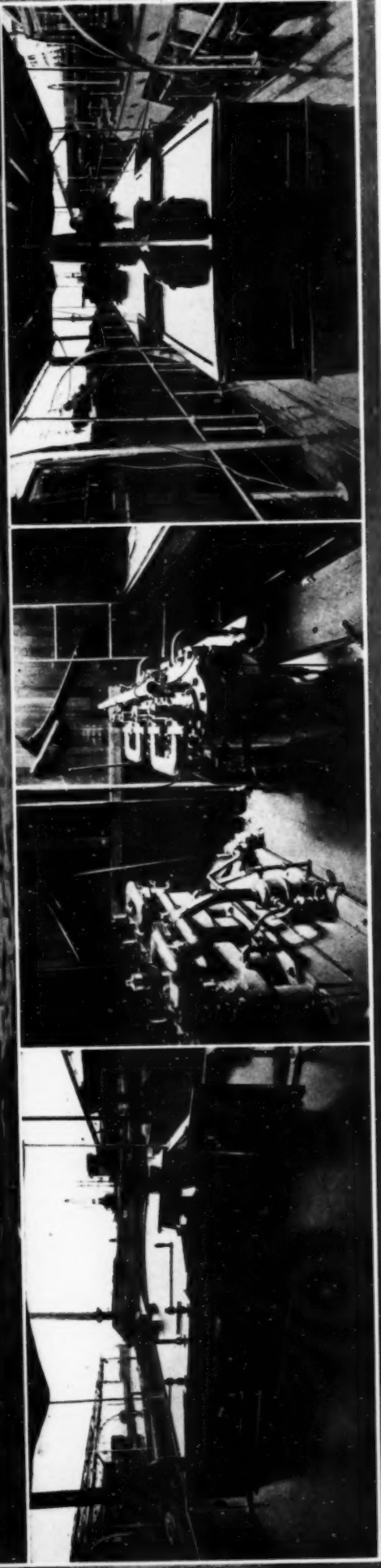
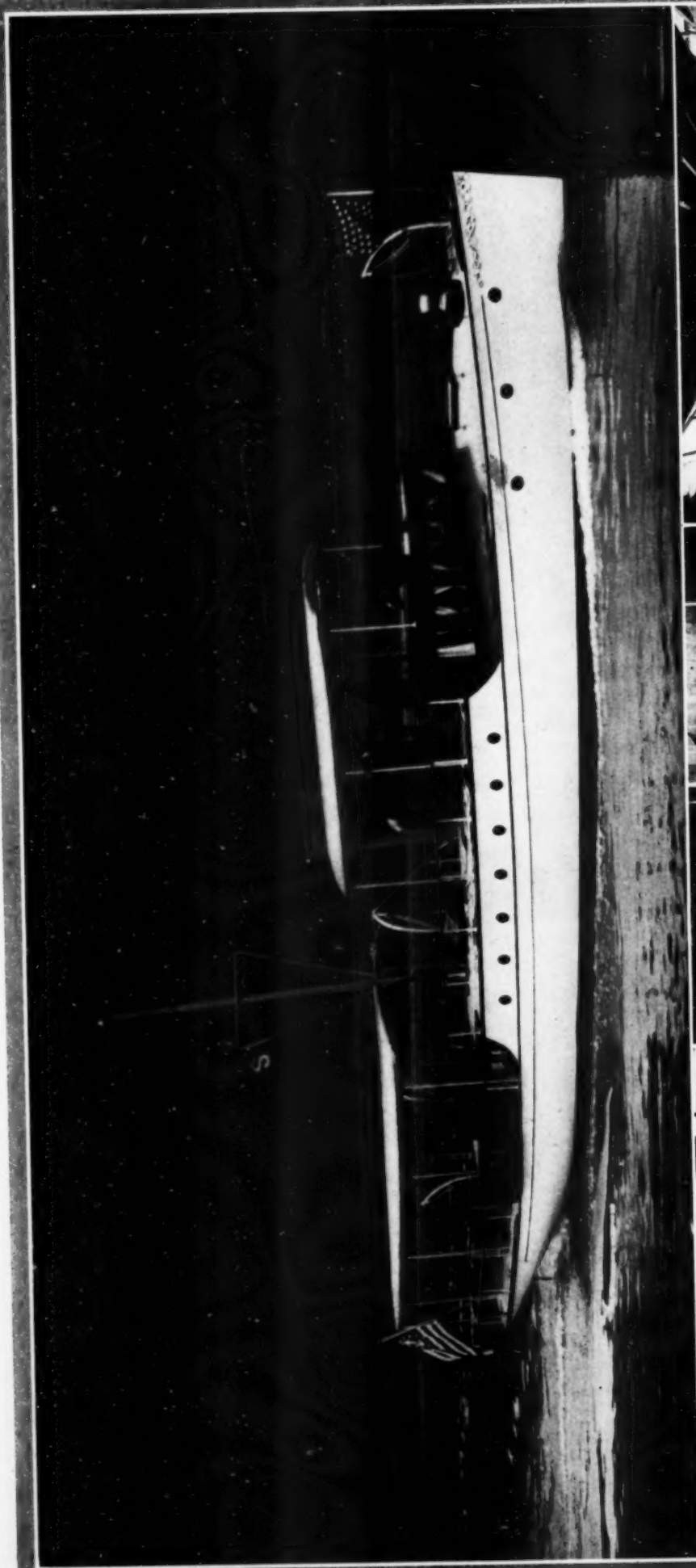


THE recent commissioning of the powerful ocean-going yacht Sybilla II, launched at the Mathis Yacht Building Company's yards at Cooper's Point, Camden, N. J., adds another handsomely equipped boat to Philadelphia's sea-going racing craft. This boat, while built more especially for general cruising and pleasure purposes has embodied in her designs and construction all the attributes necessary to enter any of the ocean races, without making any marked changes.

Sybilla II was built for and is owned by John F. Betz, 3rd, of Philadelphia, one of the most enthusiastic yachtsmen of the Quaker City, and the new boat will fly the pennant of



The dining saloon forward is tastefully finished in mahogany. Note the Pullman windows in the trunk sides.



Lexington II is a 65-footer designed by Messrs. Cox & Stevens, and recently completed at the New York Yacht, Launch and Engine Co. Her design and a complete description appear on page 27 of this issue.

The 46-Footer Osprey.

THE 46-footer Osprey, shown below, was designed and built by the Matthews Boat Co., at Port Clinton, Ohio, for Mr. A. P. Brush, chief designer of the General Motors Co., of Detroit.

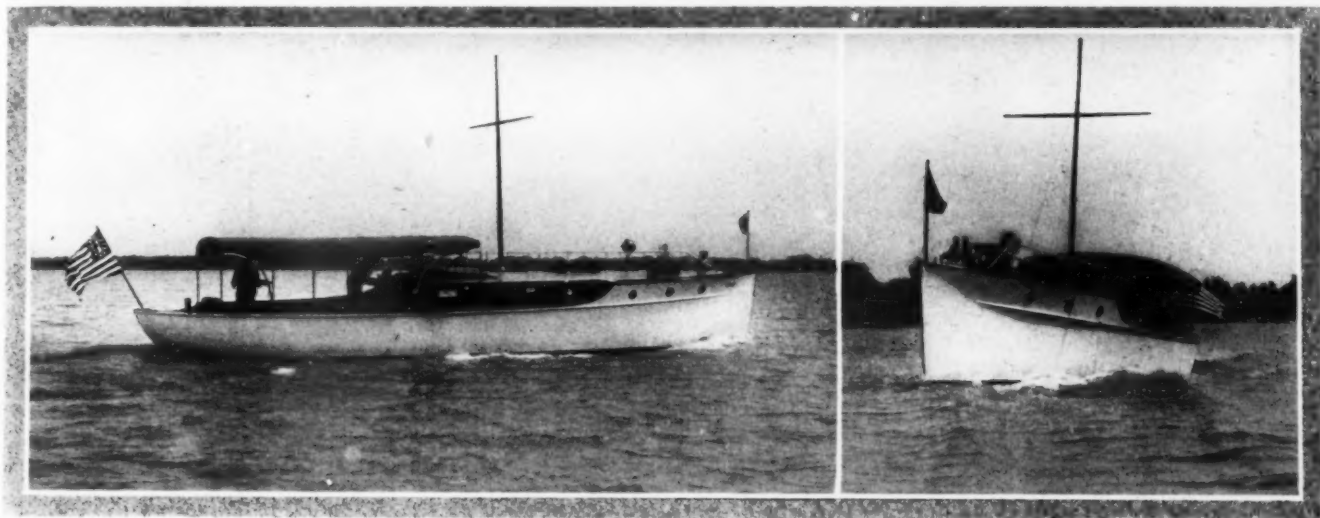
The boat is exactly 46 feet over-all by 10 feet beam, and is of the raised deck—trunk cabin type, popular with her builders. She has a slightly curved stem and the canoe type of stern with considerable free board and three feet draft.

The arrangement within is extremely simple and consists of a large lavatory compart-

ment forward fitted with two wardrobes for the storage of linen, etc. Next aft is the large cabin, the living quarters being thrown into one compartment instead of being subdivided, as is too frequently attempted in the moderate sized cruiser. There are extension berths along either side, and as this cabin measures 12 ft. 9 in. in length, sufficient accommodation is provided for a number of persons. The room may be subdivided by curtains at night affording sufficient privacy. There are lockers beneath the berths, hanging lockers, a book-case, alcoves and a desk, and

sufficient light and ventilation are provided by a large skylight, together with the ports and windows in the trunk sides. The section amidships is devoted to the motor and galley.

The motor, a 4-cylinder, 30 h.p. Ralaco, with Bosch ignition, is entirely enclosed by a brass framework over which is built a black leather cover, which thoroughly screens it and protects those passing through the engine-room. The stove, icebox and two tables, one of which folds against the bulkhead, are installed to port, while on the starboard side are the sink, lockers and several oil tanks.



Osprey, a 46-foot, raised deck—trunk cabin cruiser for the Great Lakes.

Josephine, the 138-Footer.

ALTHOUGH several months old, having been launched in February, Josephine may be considered one of the new boats, and, until recently, was probably the largest motor yacht afloat. She was designed by William Gardiner, and was built at the yard of Robert Jacobs, at City Island.

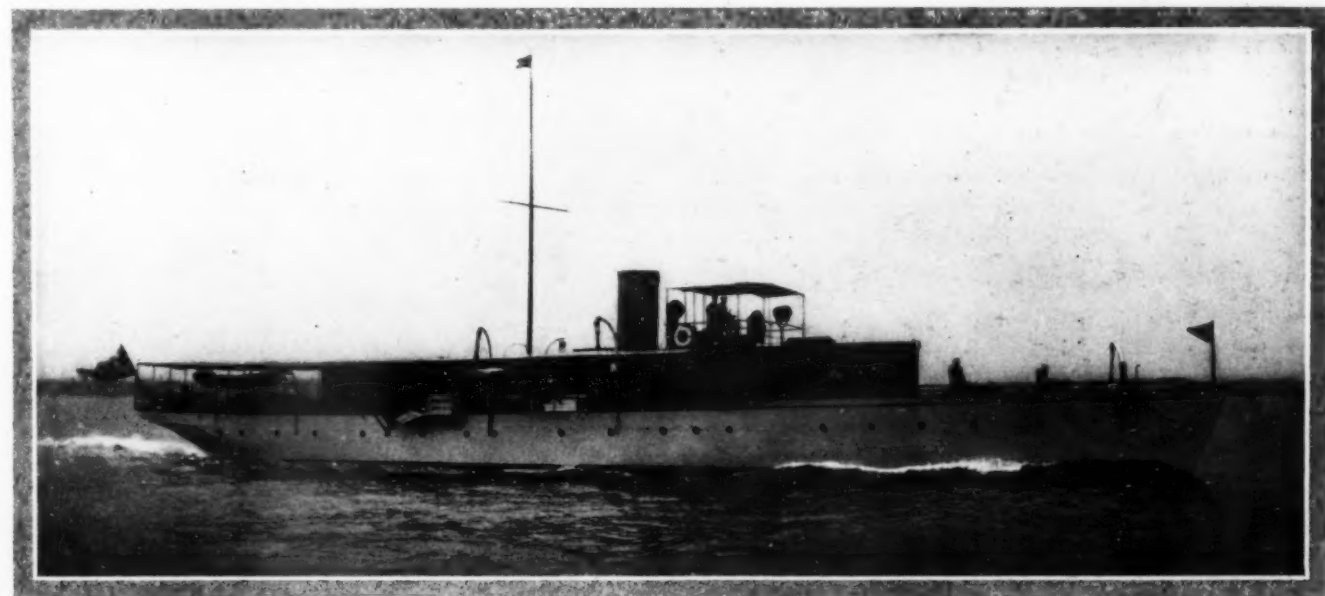
Josephine has a flush deck her entire length, and her dimensions are: 138 feet over-all, 17 feet beam, and 4 feet 6 inches draft. She was constructed of high tensile steel, and is divided into six watertight compartments by

five steel bulkheads. The compartments are as follows: The fore peak, crew's quarters, engine-room, fuel tank compartment, owner's quarters and lazarette.

The power plant consists of two 6-cylinder air-starting and reversing Standard gasoline engines aggregating 600 h.p., and at full speed they drive her in the neighborhood of 20 miles an hour. The accommodations below consist of an owner's stateroom and large bathroom forward of the lobby, and two large double

bathrooms aft of the lobby. As is shown in the illustration below there are two deck houses, the forward one being divided into the dining saloon and pantry, the after one being fitted up as a social hall and music room. The boat is lighted and heated throughout by electricity, generated by two dynamos used in conjunction with storage batteries.

Josephine has already made an extensive cruise to the West Indies and is proved thoroughly up to the expectations of her owner Mr. Shearson, of the New York Yacht Club.



Until recently Josephine was the largest motor yacht afloat. She is 138 feet over all, and is equipped with two 300 h. p. motors.

Tillamook, a Husky 58-Footer.

TILLAMOOK means Big Chief, and for solidity and strength of construction this boat certainly lives up to her name. Her owner, Mr. David C. Whitney, of Detroit, has owned a small fleet of motor boats, and is fully alive to the importance of strong hull construction. Consequently when he commissioned Carlton Wilby to design this boat he laid particular stress on this feature, and as a strong hull is also one of Mr. Wilby's particular hobbies, there is nothing fragile about Tillamook.

If one has any doubt on this point, a glance

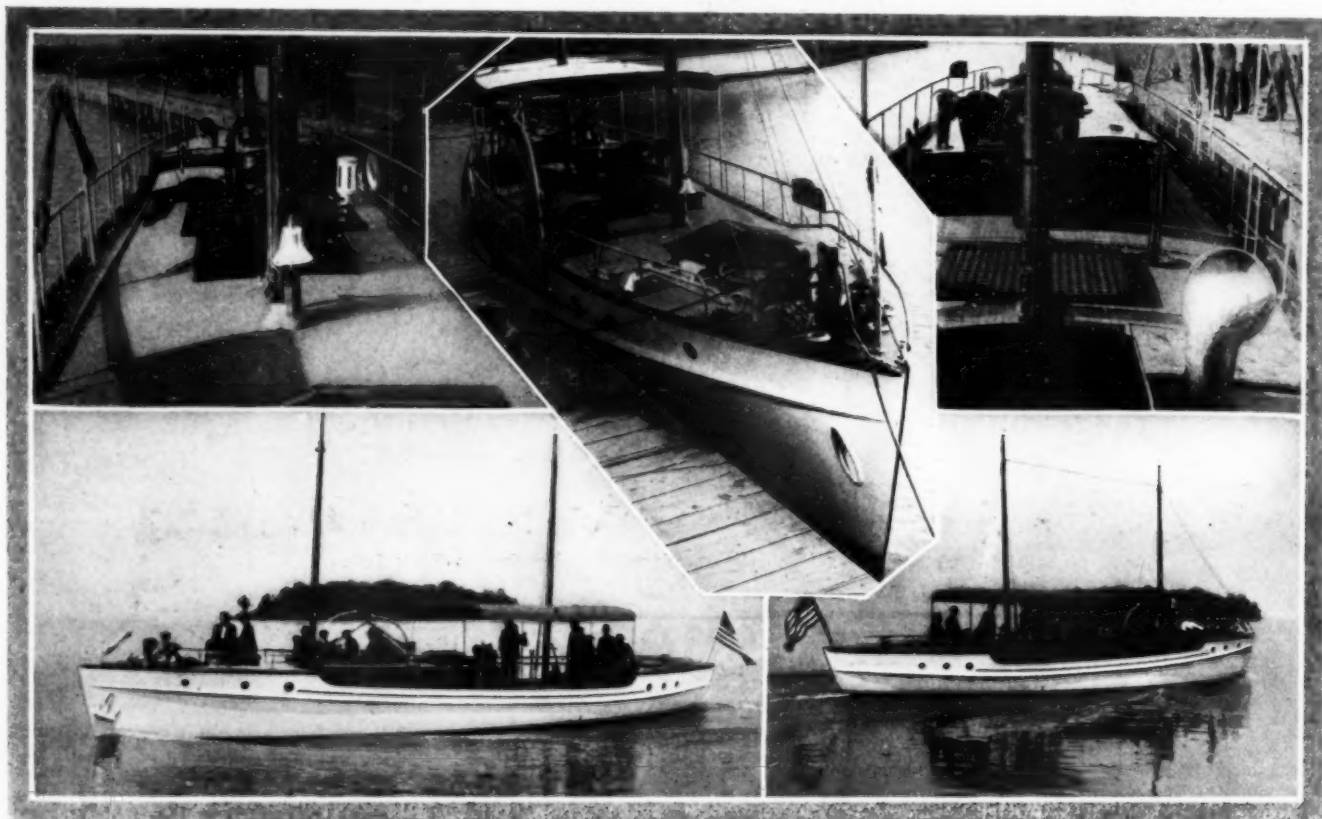
No expense was spared in making this boat absolutely complete; although there was no attempt to make the finish elaborate, either outside or inside. Deck house and deck trimmings are of mahogany, the main deck being white pine, holy stoned, and the raised decks canvas covered.

The steering equipment is unusually, "husky," this being another of the designer's hobbies. The rudder is made according to regular ship-building practice; with bronze stock and frame, and bronze plates on each side of a wood filling. The Linnacle is larger

water connections at all lavatories and sink.

The engine equipment consists of two 30-40 h.p. Murray & Tregurtha engines, located under main deck, and handled either from deck or below. A cruising speed of 11 miles is obtained, which is good, considering the fact that Tillamook has almost twice the displacement of most boats of her size. The engines have given excellent satisfaction and on the initial trip from Port Clinton to Detroit, a distance of about 60 miles, worked without a hitch.

It is the intention of Mr. Whitney to have



The model of Tillamook's hull is that of the whaleboat, with raised decks forward and aft.

at her specifications is enough to convince him: Keel, 6 in. x 9½ in.; keelson, 6½ in. x 10 in.; frames, 3 in. x 2½ in.; spaced 12 in., and double at engine; floors, 3 in. x 4 in. on every frame; planking, 1½ in. thick; garboard, 2¼ in. x 8 in. oak; fender 6 in. x 6 in. oak. This is heavy construction for a 58-footer, and it requires a high degree of boat building skill to turn out this sort of work and make a good looking job.

The builders, The Matthews Boat Co., demonstrated that they have this skill, for the work will bear inspection from keel to truck.

than usually installed on a boat of this size, with a 6½ in. compass and all the necessary magnets for complete adjustment. The boat has not a piece of iron in its entire construction, everything being copper or bronze.

The arrangement includes an owner's stateroom and lavatory forward, main cabin with two deep transom seats, with hanging lockers, shelves, alcoves, etc., general lavatory immediately following, galley arranged on opposite side having coal stove, glass-lined refrigerator, sink, etc. Air pressure was used in all the water service, there being hot and cold

the boat go under its own power to Oregon after a year's service on the Great Lakes.

Her large displacement and deep draft make Tillamook unusually easy in a seaway, and she handles exceptionally well under any conditions. By running one wheel ahead and the other astern she can be turned almost in her length. The boat is lighted throughout by electricity, and is fitted with two heavy spars with sails.

Her principal dimensions are: Length, over-all, 58 ft. 5 in.; length, water line, 54 ft.; beam, 12 ft., and draft, 4 ft. 6 in.

Gee Whiz--A Fast One.

GEE WHIZ IV, a photograph of which appears on the following page, is the new high speed power cruiser which was built this spring for Mr. Lawrence F. Percival of the Marblehead, Corinthian and other clubs. It is a well known fact that when Mr. Percival orders a new boat it means speed; as one recalls the large list of Sally's. The plans were drawn in the office of Arthur P. Homer, 88 Broad St.

In type she is rather different from the usual high speed cruiser of her size. Mr. Percival would not consider a speed of less than 18 miles an hour and also wished accom-

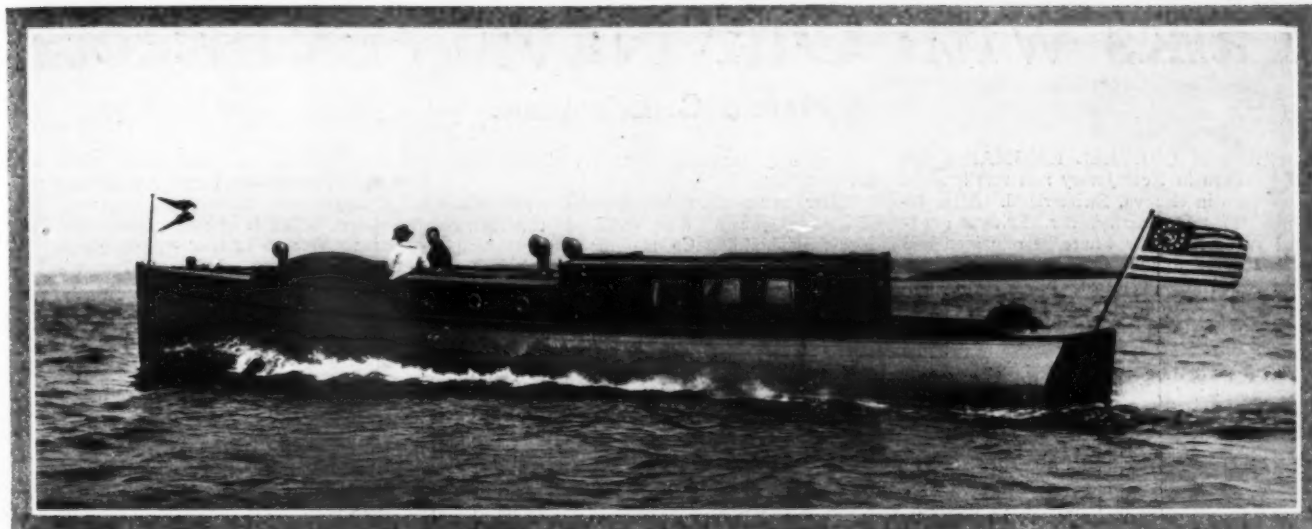
modations for sleeping four persons with comfortable living accommodations; also the boat had to be a good sea boat so that she could go on the yacht club cruises and also act as a tender for his sail-boat and tow her around to the different regattas.

Her type is a combination of the raised deck and trunk cabin which gives her good freeboard forward and very light and airy living cabin aft. The dimensions are: Length over-all, 50 ft.; length on the water line, 49 ft. 3¾ in.; beam extreme, 7 ft. 7¼ in.; draft of hull, 2 ft. 6 in.

In designing the boat the object was to get

a hull which would not roll badly and be quite stiff and at the same time have plenty of deadrise forward so as not to pound and sufficient flare to make her as dry as possible in a head sea. The plumb stem and stern of the round transom type lend to a very smart and racy appearance. Her accommodations are well worked out and the weights of fuel, engine, etc., are placed nearly amidships.

Below deck, starting forward, is a large storage locker or bin for cables, etc., aft of which is a good sized toilet-room provided with a folding lavatory, shelves, lockers, etc. Aft of this is the owner's stateroom, provided



Gee Whiz is a 50-footer designed for fast cruising and for tender service to her owner's sailing yacht. She is equipped with a 70 h. p. Sterling, which drives her 18 miles per hour.

with two berths with drawers and storage lockers below. Aft of this is the steering cockpit, which has an athwartships seat which will accommodate three persons. All the engine controls and reversing levers are located in this cockpit so that the boat can be handled entirely from this point. A khaki spray cloth around the cockpit will give it good high sides and keep out a great deal of spray.

The gasoline tanks are installed under the cockpit floor and are of extra heavy copper of a total capacity of over 200 gallons, which will give her a cruising radius of 250 miles.

Next aft is the engine room which is amidships where it should be. The engine is a special six-cylinder $6\frac{1}{2}$ in. x $8\frac{1}{4}$ in. four-cycle Sterling, turning at 570 r.p.m., which gives over 70 h.p. Careful attention has been given

to ventilating this room and it is to be completely fitted with all the usual tools, lockers, etc. A switchboard is installed and an electric lighting outfit.

The galley is next and is completely fitted with stove, sink, ice-box, fish-racks, etc. Aft of this is the main cabin, which is very completely fitted with a side-board, two large clothes closets and comfortable transoms.

Thelma, the New 138-Footer.

COMMODORE MORTON F. PLANT'S new steel, twin-screw power yacht Thelma was launched at noon May 17th, from the yard of her builders, the Gas Engine & Power Company and Charles L. Seabury & Company, Consolidated, of Morris Heights, New York City. She went into commission June first.

Mr. Charles L. Seabury, in the design of this vessel, has met the requirements of Commodore Plant in every particular. She is of handsome model, will be seaworthy and speedy and extremely comfortable. Commodore

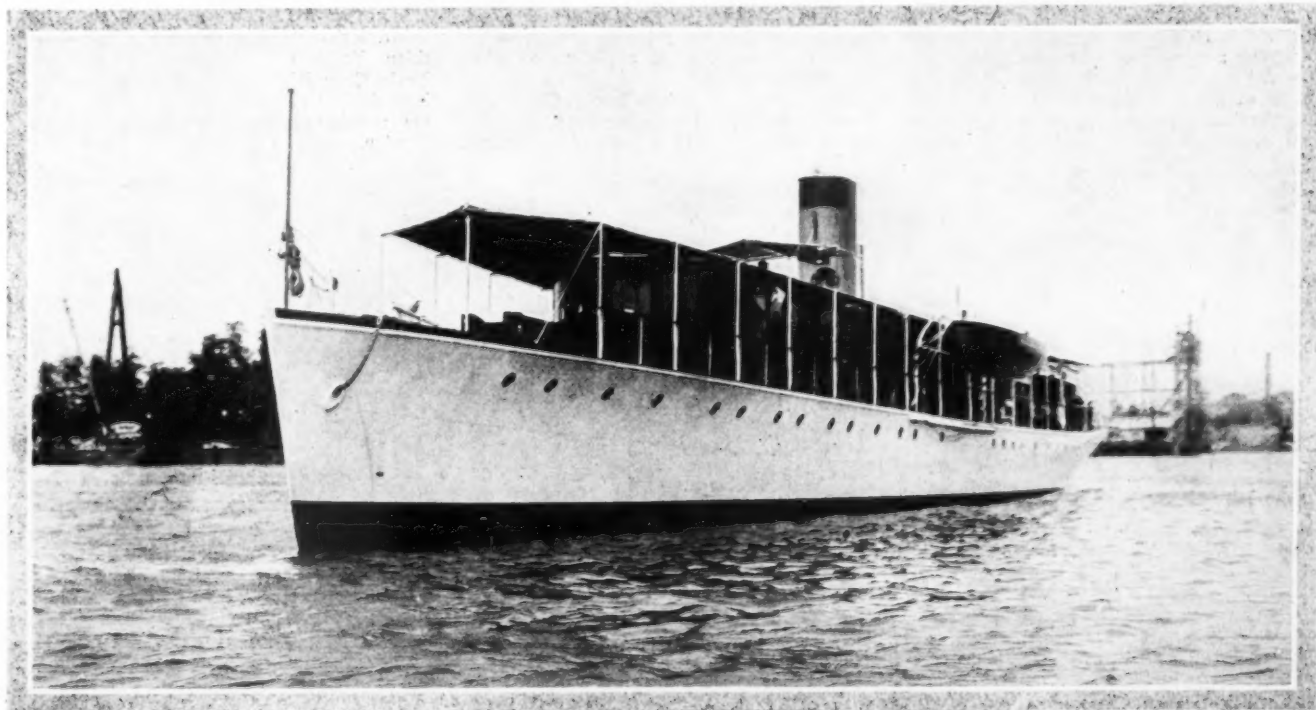
Plant will use the vessel with his new racing schooner yacht Elena, just finished.

Thelma is 138 ft. over-all, 16 ft. beam and 6 ft. draft. The deck is flush throughout the entire length, and there are two deckhouses of mahogany. That forward is arranged as a dining saloon, and in the after house there are a stateroom and a social hall. The accommodations below consist of six staterooms and three bathrooms. All of the finish is in hard woods.

Two Speedway air-starting and reversing engines, each of 300 h.p., were installed and

give the boat a speed of twenty miles an hour. The yacht is lighted by electricity, and every modern convenience has been used in her fittings. She will carry a motor boat 21 ft. long, fitted with a Speedway engine, which showed a speed of 17 miles an hour in a recent trial.

On the first trial trip Thelma averaged $20\frac{1}{4}$ miles per hour, although 20 miles is the speed called for in the contract. It is expected that close on to 21 miles per hour will be attained. The machinery worked perfectly, and the entire outfit is a decided success.



Thelma is one of the biggest motor yachts of the season. A picture of her launching appears in the Y. and Shop section of this issue.

New motor boat descriptions continued on page 51.

Talks With Our Naval Architects.

Martin C. Erismann.

MARTIN CORYELL ERISMANN was born in New Jersey and was brought up in Geneva, Switzerland. After returning to this country, Mr. Erismann entered Webb Academy where he remained two years, leaving to take up active work at the yacht yard of William B. Starns, Marblehead. His next work was at the plant of the Gas Engine & Power Co. & Chas. L. Seabury & Co., New York, and after a few months of varied work on fast steam yachts and torpedo boats, he was put in charge of the twin screw steam yacht, Akela, built to the order of W. H. Ames.

Mr. Erismann left for Glasgow University where, under Prof. J. Harvard Biles, he took up questions of theoretical naval architecture and spent much time about the famous Clyde yards. After visiting the Continent he returned to New York and entered the transport branch of the Army Department. From New York Mr. Erismann went to the Maryland Steel Company's drawing office at Sparrows Point and while there served two years in the yard in practical work.

From Sparrows Point he went to Staten Island, where with the Marine Construction & Dry Dock Co., he acted as chief draftsman. While there he designed the famous Standard and a number of other launches and yachts.

It was at this time that, realizing the importance of motor propelled vessels, Mr. Erismann cast about for improvements in the then common form of motor boats, and he was one of the pioneers to adopt the Normand stern, the raised side, and bow flare now commonly recognized as features of a good motor vessel.

After three years' work at Staten Island, Mr. Erismann opened an office of his own, designing a number of successful yachts. He also did considerable work for the model committee of the New York Yacht Club, who at this time were rearranging their large collection of models which stands unsurpassed in

any country for thoroughness and historical interest.

After some time in editorial work Mr. Erismann joined the staff of the Fore River Shipbuilding Co. at Quincy, performing routine work in the drawing office which in-

cluded work on battleships, torpedo boats, cargo vessels and yachts. He was assigned to special work and made an exhaustive report of the motor boat industry, the firm at one time considering the advisability of entering that field.



Martin C. Erismann, Naval Architect.

While at Fore River he found time to design Queen Mab for John R. Buchan of the New York Yacht Club, a picture of which boat appears below.

She was built by Robert Jacobs, City Island, New York City, and is 54 feet over-all, 47 feet on the water line, with a beam of 11 feet, and

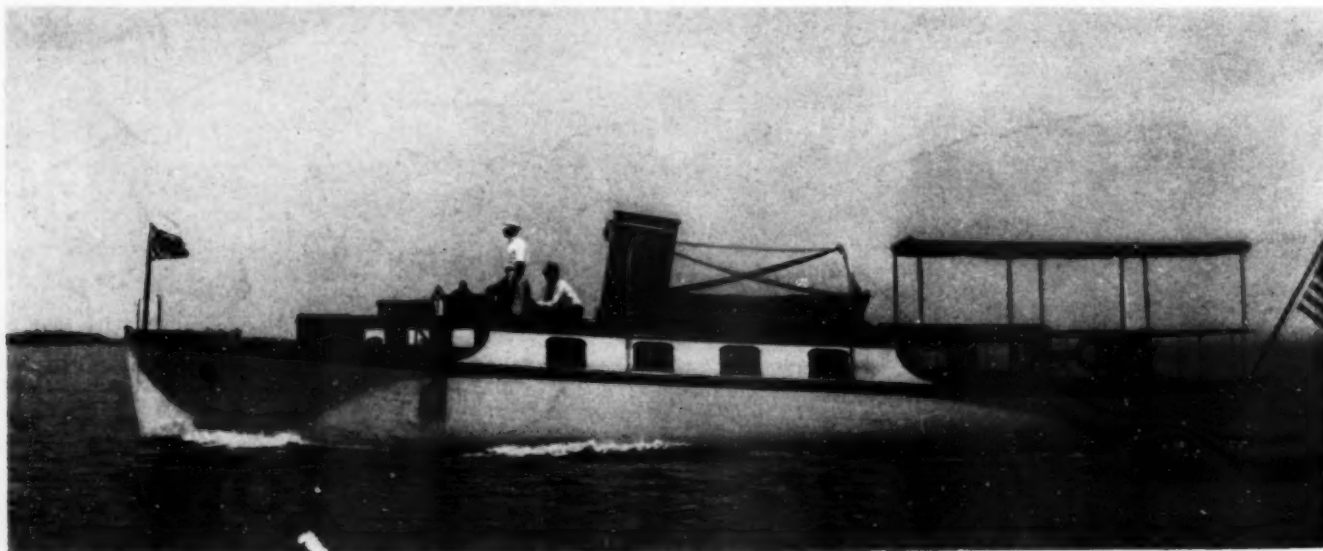
greatest draft 3 feet. Her power plant is a 1910 model 24-30 h.p. Twentieth Century motor, equipped with Bosch high tension system of ignition, which is capable of driving her at something over 10 miles an hour. Queen Mab is fully illustrated and described in the December, 1910, issue of Motor Boating.

Recently Mr. Erismann joined the firm of B. B. Crowninshield in Boston.

Asked his idea of the trend of the motor boat field, Mr. Erismann said: "In my opinion there is every reason to be an optimist in the practice of naval architecture, the times have undergone a thorough change and the engine actuated by other than steam, has been the underlying cause; but now, as in other times, changes in a type of power have produced enthusiasts who have made rash claims for an invention or a development of it. Owing to the altered machinery installations of the present, the rule-of-thumb stability experts are likely to err. To some extent, these errors are blamed upon the experimental nature of the work, but without just cause.

"We are still at the beginning of a great development. I hope to see the proud and graceful, countered and clipper-stemmed yacht of the past come back, propelled by a power more convenient, more economical, as speedy and more easily handled and by a smaller crew than before. The gasoline engine has been the factor which has made possible the recent great progress in power yachting, and with the opening of the canals, now projected, there is no limit to the number of motor propelled yachts and commercial vessels, which can be used for pleasure or for commerce."

Mr. Erismann is a member of the Corinthian Yacht Club of Marblehead, Boston Yacht Club, Hingham Yacht Club, the American Society of Naval Architects and associate member Institute of Naval Architects, London.



The 54-footer, Queen Mab, is one of Mr. Erismann's best known designs.

Converting a "Banker" to Power.

How to Install a Motor, Tank and Steering Gear in a Dory, to Obtain the Best Results.
A Good, Honest Motor Boat for the Least Possible Expenditure of Time and Money.

THE PRIZE CONTEST—Answers to the First Question in the May Issue.

S ELECT a dory constructed of oak and pine in place of the all-pine one. The small additional outlay required will insure you a more substantial craft. The dory is strong for its weight, but additional frames will make it a more rigid and enduring motor boat. These should be fitted midway between the original frames or knees, which are widely spaced.

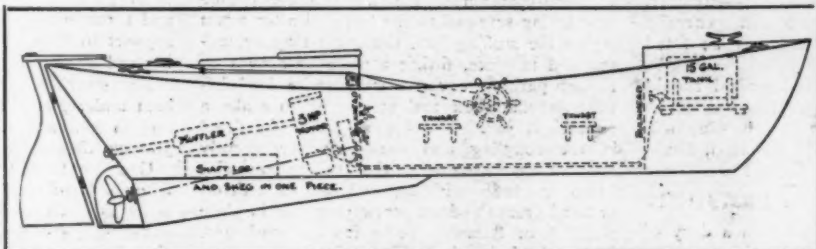
The peculiar construction of the dory stern renders difficult the fitting of a shaft log which will not leak. The shaft hole cannot be bored through the transom itself since the wheel will not then be properly immersed, and if bored through the bottom planking at the necessary angle, a long oval opening with feather edges results, both inside and out. So it is commonly bored through the junction of the bottom board, sides and transom, and a block is fitted inside for a shaft log. Such an arrangement will never remain tight, since effective caulking is impossible.

The most effective method of fitting the shaft log and skeg combined is to cut a slot through the bottom board, perhaps three

Motor Aft Under Hatch.

The prize winning answer.

inches wide and two feet in length, in the proper location to suit the shaft. The shaft log is made with a projection on the top which fits up into this slot and is made a caulking fit all 'round. The skeg is extended



In A. O. G.'s installation, the shaft log and skeg are in one piece, insuring a water-tight joint.

fore and aft of this slot, and is securely bolted up through the dory's bottom. The shaft hole passes through this skeg, and since it cuts through no joints it cannot leak.

The engine bearers should be heavy and well fastened to cross floors landing on the frames. If the engine is placed one-third of the boat's length from the stern, the shaft

angle will be about right and the boat will not be "down by the stern" and hard to drive.

Any single cylinder two-cycle motor developing three or four h.p. at five hundred turns may be used. My choice would be a make-and-break type, ignited by a six-cell dry battery and friction-driven low tension magneto. The motor should be covered by an after deck of wood, canvas covered and bulkheaded off

from the rest of the boat with half-inch matched Georgia pine sheathing. A companion slide or hatch should be fitted over the motor, with a sliding door in the bulkhead to lift out when starting or adjusting the engine. Coil, batteries, etc., should be fastened on shelves in this compartment.

A galvanized cylindrical gasoline tank holding about fifteen

gallons may be supported in wooden saddles under a short forward deck. The flexible copper gasoline pipe (with a shut-off valve at both tank and carburetor) should run in a deep groove cut lengthwise in a piece of 1½" x 1½" spruce and sprung into the angle of the bilge from tank to engine bulkhead, to insure freedom from injury.

THE PRIZE CONTEST IN QUESTIONS AND ANSWERS

THE dory has played a greater part in the history of American fishing than any other type of small boat. A product of the New England Coast, it has been evolved through generations to meet the conditions of the North Atlantic in all her moods, and of all classes of the smaller craft she is rivalled in seaworthiness only by the larger and more pretentious whale-boat. She is tricky and in the hands of the landsman is perhaps not as safe as some other boats, but the men that fish the Grand Banks and the Georges for a living, swear by her—and they know.

WHILE many refinements and even improvements have been made on the original dory in adapting it to sail and power, these have all been made at the expense of simplicity, and consequently the boats involving them are more difficult and expensive to build. The genuine "banker" is a crude affair to the landsman, but the experienced eye of the fisherman sees in her simple lines, her high freeboard, sweeping sheer, and flaring slab sides, ability and staunchness—and therefore beauty.

MANY of these boats are being successfully converted to power and there has been such a demand for information on the subject that a question on the installation of a motor in a dory was run in the May issue. The other two questions are good ones, also, and we are glad to welcome a number of new contributors in those who have answered them.

THE QUESTIONS FOR THE SEPTEMBER CONTEST ARE THESE:

1.—Give instructions and drawings for the construction of a pipe berth with method of attachment.

Suggested by H. K. Maples, Richmond Hill, Long Island.*

*This question has been submitted before, but as is the case when this occurs, the credit is given to the person submitting it for the month in which it is used.

2.—How may the cabin of a small cruiser be heated for Fall cruising without impairing ventilation? Sketches desirable.

Suggested by Fred A. Ziem, Alpena, Michigan.

3.—What is the best method of keeping the cylinder walls free from carbon deposit?

Suggested by R. K. L., St. Louis, Mo.

ANSWERS to these questions, addressed to the Editor of MOTOR BOATING, 381 Fourth Ave., New York, must be:

(a) In our hands on or before July 25, (b) not over 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired). Questions for the next contest should reach us on or before the 25th of July.

THE PRIZES ARE:

For each of the best answers to the questions above, any article advertised in MOTOR BOATING, of which the advertised price does not exceed \$25, or a credit of \$25 on any article advertised in MOTOR BOATING, which sells for more than that amount.

(There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.)

For each of the questions selected for use in the next contest, any article advertised in MOTOR BOATING, of which the advertised price does not exceed \$5, or a credit of \$5 on any article advertised in MOTOR BOATING, which sells for more than that amount.

For all non prize-winning answers published we will pay space rates.

When you send in your answer, state what you will take if you win the prize.

A removable slatted floor or grating is often fitted into the boat forward of the engine space, so that any slight leakage or spray will not slop about the feet and also to afford an even surface to move about on. The steering wheel should be fastened on an oak block against the starboard side of the boat just forward of a steersman's thwart and control levers and switch may be secured to the bulkhead within reach. Reverse gears are generally too expensive for converted dories.

The rudder is usually of wood and is hung with galvanized pintles and gudgeons on a small deadwood bolted to the transom. A short wooden or galvanized tiller on the after deck is connected up to the spool on the steering wheel with braided cotton cord running over galvanized sheaves and fairleads.

Seating arrangements should be simple—two thwarts, one two feet forward of the engine bulkhead for the helmsman—engineer, and another farther forward will generally suffice. Of course, side seats may be fitted if preferred.

The expense of the outfit described should not be over \$125.00 and is probably as much motor boat for the money as can be obtained.

A. O. G., Portland, Me.

Shaft Through Transom.

THE installation of a motor in a dory of about 13 or 14 ft. will furnish at small expense a serviceable boat that can be used when the more expensive motor yacht tender does not care to venture out. Such an installation is simple and does not require much labor.

First we must decide where the motor is to be placed. A good plan is to have 12 or 14 inches between flywheel and aft edge or amidships seat. This will allow the boat to trim well with any load. Allow further for the thickness of the flywheel and about 1½ inches more, or a total of 16 to 18 inches, and place a bed timber about 5 or 6 inches deep and 1½ inches thick of oak. Fit this carefully to bottom and planking, making a pattern of thin wood or cardboard, and put two ¾-inch No. 12 wood screws through each plank into this timber, which should have been fitted alongside of one of the frames if the location of these is favorable. About 12 or 14 inches aft of the first bed timber fit in another of the same thickness but about ½-inch lower, fastening as before.

Place on these two timbers, two pieces of 1¾-inch oak, in a fore and aft direction, spaced to suit the bolt-hole flanges on the engine. These timbers must be mortised into the bed timbers about ¼-inch and must be tapered so that the engine will set at an angle that will submerge the propeller and keep the flywheel about 2 inches clear of the bottom. After getting these trimmed approximately correct, bore 9/32-inch holes through each end and down through bed timbers and bottom of boat. Pieces of 5/16-inch rod, galvanized iron or bronze, should be headed up in a vice and driven through these holes from the bottom upward. After having a washer slipped on and white lead placed under the head to make everything watertight, these rods should be riveted up over washers and a very satisfactory engine-bed will be the result.

Bore a 1-inch hole through the stern board where the shaft-hole is desired and fit a false stern-post and skeg as shown in drawing, making sure that the after edge of the stern-

post is square to the center line of the shaft so that the stuffing-box may be lag-screwed to place without further trimming. The hole bored for the shaft should be not less than ¼-inch larger than the shaft. The lower edge of the skeg should be about ½-inch below the propeller. Both false-keel and skeg should be fastened by wood screws and 5/16-inch rods where these can enter the stern knee, but care must be taken not to get these into the shaft-hole.

Next set the engine in place, slip the shaft through the hole and see if the end of shaft will enter the coupling readily. If the engine is fitted with a split coupling, bolt the loose half to the engine half after seeing that the shaft will readily enter the bore. Now shift the engine, trimming the bed if necessary, so that the shaft extends through center of shaft-hole and the stuffing-box flange fits aft side of stern-post perfectly flat, when the engine may be lag-screwed to the bed and after again trying the stuffing-box, the same may be lag-screwed in place, fitting a piece of canvas or rubber packing covered with white lead between stuffing-box and stern-post to make a watertight job. The key may now be fitted in the coupling and the shaft permanently coupled up. Next pack the stuffing-box with hemp or candle wicking, well soaked with oil or hard grease and set screw propeller in place about 6 or 8 inches away from stern-board. The end of the shaft, if this is too long, can readily be cut off with a hack-saw.

The rudder should be about 3 inches clear of the propeller and the shoe can be a piece

box, using a universal joint so that propeller could be pulled up out of the way when grounding or nesting. I have also run the shaft out through knee in stern, with motor well aft, but these methods were not satisfactory and now I think we have the ideal installation.

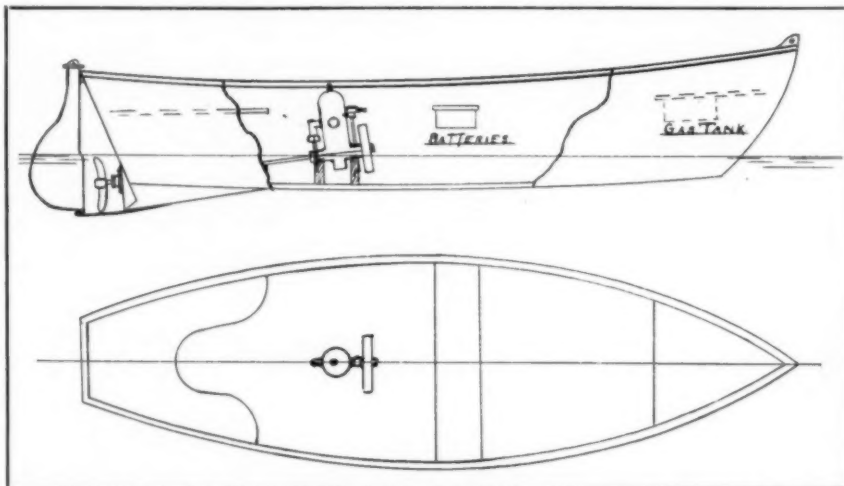
Set motor well aft of midships locking beds over two sets of timbers and running fore and aft with thwart-ship braces to reinforce them. The skeg is of oak 3½ in. wide and acts also as a keel running well forward of midships and is deep enough to protect propeller on a ground-out, the same being rabbitted up through bottom of dory, leaving a shoulder about ¾ in., which permits the use of white lead and cotton. Nailing down through planks into skeg insuring a perfectly tight job. Fasten with galvanized bolts to timbers and lags through knee. The rudder is of galvanized iron, setting into skeg iron and through rudder port in transom with oak support to hold it in place and prevent working rudder port loose.

For steering use rope running around the boat under gunwale, using pulleys next to tiller and in bow and screw eyes around side, and you can then steer from any part of the dory.

Gasoline tank should be specially made to fit on side of boat and should be installed on same side with carburetor.

The battery outfit should be on opposite side from muffler to preserve trim and keep an even keel. This form of installation will give more speed per horse power than any other, as boat runs on her bottom and without fuss, does not haul down aft and push her wide, flat floor against the chop and is in less danger of pounding out her bottom in rough water and can be run up on the beach for easy landing.

G. D. THORNDIKE,
Portland, Me.



"North Star" advocates running the shaft out the bottom of the transom.

of 5/16-in. x 1¼-in. stock. The exhaust can be carried through the side or stern-board but should not, on so small a motor, be connected to an under-water exhaust device.

The gasoline tank should be the width and length of the forward seat and about 3 inches deep. It should be hung under the seat, being held by strips of sheet iron, and the piping should be run along the side of the boat where it can be seen at all times. To protect it, fasten ½-inch by 1-inch strip just above and below it so that it cannot be injured. Fit a valve at the tank and also at the motor. The gasoline pipe should be copper tubing in one length, ½-inch iron pipe size.

Batteries and coil should be in a drawer arranged with slides under middle seat, with switch on front of drawer.

Steering gear will be best arranged by fitting a yoke to top of rudder and leading a ¼-inch cotton line through screw-eyes entirely around boat, so that it may be picked up anywhere.

NORTH STAR, Chicago, Ill.

Tried Several Methods.

I HAVE installed a great many motors in bank dories. In the first one I set the motor in the center of the dory with a tunnel box built up inside boat for stuffing-

From Nova Scotia.

THE dory in which I installed a 2½ h.p. motor, is 18 ft. 6 in. long and 4 ft. 10 in. wide; has a 2½ ft. deck forward and a 7 ft. cuddy aft, leaving an 11 ft. cock-pit.

The motor is installed in the cuddy, which has a sliding hatch on top and sliding boards in front, which can be lifted out, making a large opening for operating the engine.

The engine, gasoline tank, batteries, coil, etc., in fact the whole motor equipment is placed in this cuddy, and when the sliding boards are placed in front and the hatch hauled shut, can be locked and will form a safe and watertight engine room.

The engine bed consists of two cross pieces bolted through the flat bottom and two fore and aft stringers fastened to the cross pieces with lag screws.

The engine is fastened to the bed with common lag screws which have the heads sawed off and are threaded on the upper end to take a standard nut, so that, when I wish to take the engine out, I have only to take off four nuts instead of wasting time and patience taking rusty lag screws out of hardwood.

The exhaust pipe is carried out through the stern, the muffler being hung to the deck.

The gasoline tank is 8 in. in diameter and 4 ft. long, holding about 10 gals. (American) and has two splash plates. This makes the strongest and cheapest tank which can be had. It is important to fasten the fuel tank very strongly. This one is hung by four band iron straps, screwed in place. The tank is also well blocked fore and aft.

The gasoline supply is taken from the forward end of tank making a very short pipe and leaving the shut-off cock and gasoline separator easy of access. The gasoline is filled in from the deck.

The coil and battery are on the opposite side from the tank. The coil is screwed up to the deck with the vibrator under the edge of the sliding hatch making it easy of access for making adjustments. This also allows a very short, high tension wire.

The battery box is placed on a shelf bringing it up to the deck and out of the wet and grease.

The switch is on the outside of the bulkhead, as are also the timer and throttlet control, so that the engine can be operated with everything closed up, as in rainy or rough weather, when there is much water coming aboard.

As I built this outfit with the idea of selling it to a fisherman, I used a common tiller and comb for steering, this being the simplest and cheapest kind of steering-gear. I could have placed a wheel forward, with ropes running along the washboards, or had a continuous rope run around the boat at the same place.

Since writing the above I have discovered the necessity of a ventilator for the engine room, when running with everything closed up, so I bored a number of holes in the upper part of the bulkhead and put a removable hood ventilator on the top of the hatch.

A. F. POWERS, Novia Scotia, Can.

Used Automatic Aligning Stuffing Box.

THE first question which arises when one sets out to place a motor in a dory is: is she stiff enough to withstand the vibrations. If not she should be strengthened by the additions of extra braces, knees and stringers if necessary. When satisfied in this respect the other problems may be taken up.

There is on the market an automatic aligning stuffing-box and shaft log combined, which may be used by cutting a slot of sufficient length in the bottom of the boat and bolting it on securely, care being taken to make a tight joint. If this is used it will be well to put on a skeg just forward of it as this will protect the propeller and make her steer better.

If one prefers to use timber, the skeg and shaft log will be combined and care must be taken in boring for the shaft to keep the hole true and in line with the engine. Otherwise unequal pressure will be developed which may cause the bearings to heat. In the case of either shaft log a shoe should be run from the skeg to the rudder post.

The engine bed should be made as solid as possible to prevent unnecessary vibration, 4 x 4 in. or heavier, if possible, and bolted straight through the bottom. The location of the engine is a matter of individual taste, although a position as far aft as practical will give the

following advantages; the downward pitch of the shaft will help overcome the tendency to "squat," the motor being entirely decked over, and reached by a hatch, which will keep it dry at all times and give a space for fuel tank, batteries, oil cans, tools, etc., so that all may be placed under lock and key, which is convenient where "borrowing" is a habit.

With this arrangement the tank may be installed aft of the engine where will be found room for one holding from 15 to 20 gallons. It will be filled through a deck plate just astern of the hatch. Decking over a few feet forward will give a locker where one may carry the life preservers, bell, horn, lights, etc., required by the regulations, and also the anchor and cable.

The rudder will be hung with the bottom of the post resting on the shoe which runs from the skeg and the upper part extending through the transom to above the deck. The tiller rop may be run along the sides through screw eyes to a small steering wheel on the forward bulkhead. An auxiliary steering wheel or lever placed near the after hatch will be found handy when one is alone.

As the ordinary "banker" is from 18 to 20 ft. long this layout will cut the boat up about as follows: The engine locker will take about 7 or 8 ft.; the forward locker about 4 or 5 ft., leaving a cockpit of 6 to 8 ft. clear which may be fitted with side seats or left free for camp stools as desired.

F. M. COMEE, Cambridge, Mass.

Removable Davits for the Cruiser.

How to Make a Set of Davits That May be Taken Down and Stowed When Not in Use.
Devices That Will be Found Handy Where Deck Space is at a Premium.

THE PRIZE CONTEST.—Answers to the Second Question in the May issue.

Hinged Davits.

The prize winning answer.

THE davits shown in the drawing are to be made of iron pipe and fitted with a wrought iron joint. This joint, as shown, is made with a stop to retain the upper part of the davit in its operating position.

The receiving socket for the davit is made of a piece of pipe fitted with a cap at its lower end and attached to the deck by means of a floor flange and properly secured below. Standard fittings may be used.

It will be seen from the sketch that davits constructed along these lines may be easily folded and removed from their sockets for stowing.

J. F. CAVANAGH, Providence, R. I.

Removable Iron Pipe Davits.

GET two pieces of 1½ in. pipe (steam pipe is the strongest) ten or eleven feet long, and bend around a form of blocks set up at intervals of a foot to form a curve about three feet long and say two feet out, according to the width of the "dink" and the distance the davits must be set from the edge. Gas or galvanized pipe can be bent cold, but steam pipe must be heated. If there is a boilershop or shipyard handy they can quickly do the job. If you must do it yourself, fill the pipe with dry sand and put fittings on the threads.

After the pipe is cold screw on the upper end a 1½ in. pipe cap. Drill through the cap and pipe together a half-inch, or five-eighths hole, so that an eye-bolt put through will stand vertical when the davit is set. It is needless to say put the ring down and a cotter pin through the top to prevent nut from working loose. Rivet or bolt a cleat on the side to fasten the loose end of the tackle to and your davits are made.

For sockets get two pieces of 2 in. pipe not less than two feet long and brace below deck.

The method of bracing is clearly shown. For stringers use 3 in. x 4 in. chestnut. Bolt upper one to deck beams. Set the lower one plumb under it and bolt it also if anything to bolt to is available.

Two braces to take the strain when the davits are out will also be necessary. Braces are of 2 x 4 in. chestnut and mortised into stringers.

To set the davits bore an auger hole of a size that the pieces of two-inch pipe must be driven in. You can go below and with a small gimlet bit bore up for a guide and your holes will then be sure to come in the center of the stringers. Drive in the pipes, flush with the deck, and put a half-inch bolt through lower end of pipe and stringer. If the "dink" is very heavy put another bolt alongside each pipe in the top stringer.

Place the davits in the deck pipes (the bolt through the bottom will prevent dropping through), hook on the tackle and hoist the dink aboard. Unhook the lower block from the eye in the boat and hook it on the cleat

on the davit. Pull hard enough to hold it on; make the loose end fast around the cleat. Lift out the davits and stow one on each side of the "dink" and you have her aboard and the davits are out of sight in about two minutes. Of course the whole thing needs two coats of paint and if you use red lead first it will require three coats.

W. B. MOORES, Newburgh, N. Y.

Easily Constructed.

THE accompanying sketch shows a type of removable davit that can be cheaply and easily constructed.

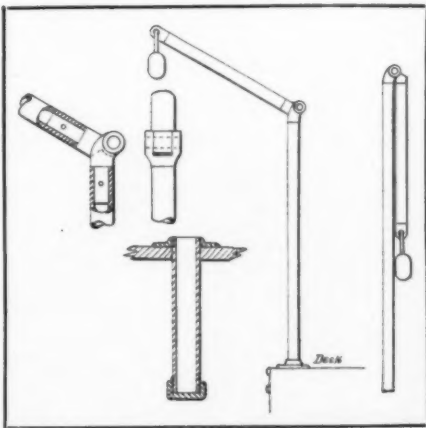
The uprights had best be obtained from some blacksmith as it is not practicable to make them unless you are an iron worker and have a shop at your disposal. They should be high enough from the tender chocks that the tender may swing in easily. The eye in the upper end must be large enough for a shackle bolt, the bow of which holds the pulley. The diameter of the stock from which the uprights are made should be one or one and one-eighth inches for a rowing tender, and a little larger for a light power tender. The uprights should be galvanized or painted, preferably the former.

The deck fittings are very simple, all being standard galvanized pipe fittings. The bottom plate is a pipe flange screwed firmly to the deck, the end of the upright setting into the flange and resting on a circular piece of galvanized sheet iron. The support on the side of the cabin is made of a flange, close nipple and tee as shown in the sketch. The size of all these fittings must be governed by the size of the uprights you use, having them large enough for the uprights to pass through easily.

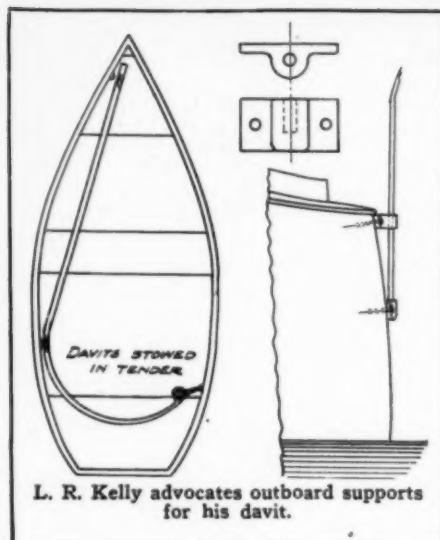
As will be readily seen, these davits can be unshipped and stowed readily, and yet cannot possibly come out of their own accord.

The total cost will be about \$3.00 for the uprights, including galvanizing and \$1.00 for the pipe fittings.

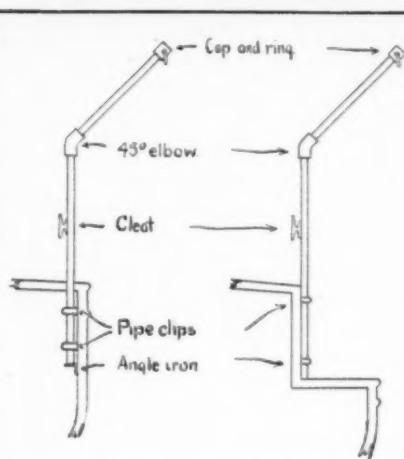
THOMAS HALL WYATT, Winthrop, Mass.



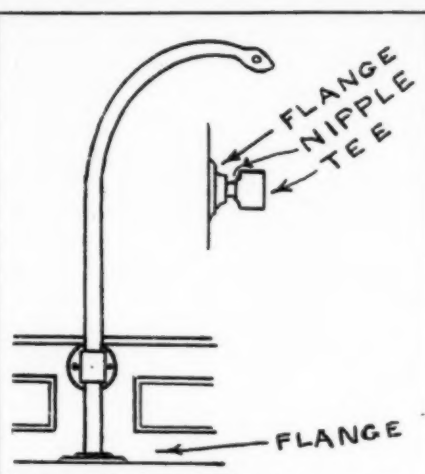
J. F. Cavanaugh's davit folds compactly when taken down.



L. R. Kelly advocates outboard supports for his davit.



Davits of standard pipe fittings described by F. W. Eaton.



The method of supporting T. H. Wyatt's davits.

Galvanized Pipe and Fittings.

VERY satisfactory davits may be made from galvanized pipe and fittings, the size of the pipe depending upon the size of the cruiser and the weight of the tender. The length of the pieces of pipe will also depend upon the size of the boat.

Each davit will consist of two pieces of pipe, a forty-five (45) degree elbow and a screw cap. The pipes should be threaded so that each will screw in the full length of the elbow in order to get all the strength possible at the turn. On the out-board end fasten a ring through the cap to take the hoisting tackle, and on each upright drill and tap holes and put on a small cleat.

If the craft is of the raised deck type, bore two holes through the top of the house at the edge in which to ship the davits. They may be held in place in a pipe socket, or by regular pipe clips, and supported by a small piece of angle iron bolted in place for them to rest upon. The two holes should be fitted with deck plates to keep out the water when not in use.

If of the hunting cabin type the davits may be shipped at the edge of the runway around the cabin in the same manner as on the raised

deck cruiser; or, by means of rings fastened to the edge of the house, they may be shipped without making any holes in the deck. In the latter case the out-board arms will have to be lengthened enough to allow for the width of the runway.

This will give davits that may be quickly taken down and unscrewed, leaving two straight lengths of pipe that can readily be stowed away in a small space.

F. W. EATON, Wenham, Mass.

Stow Davits in Tender.

CONDITIONS requiring the davits to be stowed away, bring to mind a small cruiser in which every available space is needed. Since the davits are only used when the tender is needed, a very good place would be to fasten them in the tender when not in use.

Brass or bronze castings permanently fastened to the cruiser can be utilized to hold the davits when they are used. The upper casting having a through hole and the lower casting one part way through. This is to form a stop or resting place for the end of the davit iron.

Hoisting tackle, etc., can also be stowed in a suitable place in the tender.

L. R. KELLEY, Philadelphia, Pa.

An Arrangement Requiring but One Davit.

THE method described in this article is one used on a thirty-seven foot over all raised deck cruiser, of heavy construction, and used in open water. The boat is rather deep hulled, and the house not excessively high. She is equipped with a strong mast (a spar which formerly did duty on a sailing craft), which is stepped substantially to the keel, and is often used for the purpose of spreading a tri-sail.

The mast is stepped about twelve feet from the bow of the boat, and at the mast head is rove a strong tackle, leading to the deck, with a two sheave block at the mast head, and a single sheave block at the deck.

To the end of the halliard is spliced a heavy galvanized iron hook. This was originally intended to get the heavy anchor aboard, but has been put to many uses. This tackle takes the place of the forward davit. The after davit was forged at the blacksmith's, and made to fit through a ring bolted to the after end of the trunk, and set into a deck socket screwed to the cockpit floor, and will swing in the rings. It may be lifted right out of the rings, and stowed under the seats when not in use.

F. W. S., Woonsocket, R. I.

Adjusting the Carbureter.

How to Determine Faulty Carbureter Adjustment and the Best Methods of Correcting It. Various Methods of Persuasion as Applied to the Average Automatic Carbureter.

THE PRIZE CONTEST—Answers to the Third Question in the May Issue.

Mixture Usually Too Rich.

The prize winning answer.

IN this article it is presumed that all electrical apparatus connected with the engine is in good order; that the spark is sufficient and that by "automatic carbureter" is meant, one having a spring regulated auxiliary air-valve.

Faulty carbureter adjustment may be detected as follows: If the engine runs evenly with disconnected clutch but is lacking in power when clutch is engaged, or if it backfires through the carbureter, the mixture is deficient in gasoline. If the engine runs fairly evenly but fails to respond immediately when spark and throttle are advanced and then either acts sluggishly or chokes down and stops, the mixture contains too much gasoline. An excessively rich mixture will deposit soot on the spark plugs and also gives forth an exhaust which is exceedingly irritating to the

eyes and nostrils, while a perfect mixture is almost odorless.

In making adjustments on carbureters of the automatic type first set up the spring of the auxiliary air-valve until the valve itself is fairly seated with a light, even pressure. Then open the needle valve controlling the gasoline until the engine starts on being cranked. Now advance the spark to a fair advance and regulate the mixture with the needle valve until the engine runs smoothly and evenly. Next, with one hand on the auxiliary spring adjustment and with the spark still advanced, open the throttle and speed up the engine. Now adjust the spring of the auxiliary air-valve so that the engine will run smoothly and powerfully with the throttle wide open. Then try the engine with the throttle wide open and the spark retarded, opening the throttle suddenly. The engine should now be tried on all different settings of the spark and throttle, the operator watch-

ing carefully for any of the symptoms set forth above, and making his final adjustments with great care. Bear in mind always to give the engine all the air possible, as the tendency seems to be to use mixtures too rich in gasoline.

With double spring auxiliary air-valves, set the slow speed spring first, then adjust the high speed spring. Where the carbureter is provided with a cam which lifts the needle valve on the opening of the throttle, set this cam last of all. If the carbureter is of the fixed jet type, that is, with no needle valve provided by which the gasoline may be regulated, the same effect will be produced by changing the level of the gasoline in the carbureter, raising it for a richer mixture.

If the engine at any time should show signs of too rich a mixture without cause, look at the gasoline level of the carbureter for too high gasoline level which may have been produced by improper original adjustment, leak-

ing metal float, stuck cork float, or an obstruction under float cut-off valve. Have the gasoline level so set that the gasoline comes to rest just below the mouth of the gasoline nozzle. BENJ. A. WRIGHT, Newport, Ky.

Use a Speed Indicator.

FAULTY carburetor adjustment consists of one of three things: (a) Too much gasoline in proportion to the amount of air. (b) Too much air in proportion to the amount of gasoline. (c) Too little mixture supplied to the engine at each stroke.

The symptoms of (a) too rich a mixture are: Misfiring—the engine will skip an explosion occasionally and these skips will usually be followed by explosions in the muffler; smoky exhaust—if you are not feeding too much cylinder oil, smoke coming from the exhaust indicates too rich a mixture—do not confuse this smoke with steam if you run your cooling water into the exhaust; odor—the exhaust will smell of gasoline. Too much gasoline in the mixture will cause the flames from the relief cock to show a reddish color at night.

The symptoms of (b), too poor a mixture, are: The engine will misfire more than if too much gasoline is present. It will back-fire in the crank case or carburetor often and, unless a multi-cylinder engine, will usually stop altogether. A peculiar knocking noise may be heard in the cylinder which decreases on supplying more gasoline. The flame from the relief valve will show a pale blue in the dark.

(c) If there is not sufficient amount of mixture supplied the engine, it will be shown by slow running or a complete stopping of the engine.

The best and only practical method of securing perfect adjustment of the carburetor is while the engine is running in the boat and under as near the average conditions as possible. First, nearly close the throttle, meanwhile adjusting the gasoline needle-valve to the point where the engine runs at its lowest speed without missing; then open the throttle and adjust the air-valve, if the carburetor be provided with an adjustable one, until the engine runs at its highest speed. Do not touch the gasoline valve after setting it for low speed.

Of course it is impossible to count the revolutions of any but the slowest turning engines, and investing one dollar in a speed indicator and using it whenever adjusting your engine will repay you.

KATHARINE EDWARDS, Winthrop, Mass.

Carburetor Troubles and Remedies.

THE carburetor—"the heart of the gas engine"—is the most delicate organism about the engine. And if the heart does not perform its functions properly, everything else is apt to go wrong. When the engine gives trouble and the spark is all right, in nearly every case the fault may be traced to the carburetor.

Liquid gasoline is fed to the carburetor where it is atomized and mixed with air in definite proportions. This atomized gasoline changes into a vapor, and when introduced into the engine cylinder should be entirely volatilized and the mixture be one of air with from eight to twelve per cent. of vapor. When there is a smaller percentage of vapor the mixture is too "weak;" when more, it is too "rich." A weak mixture is indicated by the engine emitting peculiar coughing noises. A rich mixture results in loss of power and sometimes in "back-firing." Either of these troubles may be overcome by opening or closing the needle valve a little. When making needle valve adjustments, leave the spark alone.

But let us go into the matter of adjustment more thoroughly. First adjust for slow running: Set the spark back, shut off the air-valve, and close the throttle slightly. Under such conditions a richer mixture will be re-

quired than for high speeds. First close the needle valve and then open it little by little until the engine runs steadily. Give it just a little more gasoline than it seems to need under these conditions. By all means have the engine driving its load while making these tests.

Next, open the throttle and advance the spark slightly. You will find then that more air is needed. Supply this by diminishing the compression on the air-valve spring. Let the engine run for some little time after each adjustment, especially if it is a two-cycle engine.

After this, advance the spark as far as it will stand; that is, until the engine begins to skip. The final adjustment may now be made, generally by admitting a little more air, and perhaps a very little more gasoline. Juggle it until you get the maximum speed. When once set, leave it alone.

In multiple cylinder engines, each cylinder may be tested out separately by shutting off the spark from the others. This will often show that some cylinders require more "gas" than the others, in which case the best results will be obtained by using the average.

Finally, see that all parts of the carburetor are clean; that the float feed is free and does not bind, and that clean gasoline free from water is fed to it. A single particle of water at the needle valve will put the whole thing out of business. But water will settle at the bottom of the float feed chamber. Drain this off occasionally into a glass to see if there is water in it. This will show at a glance, for the water and gasoline will remain unmixed. A good separator and strainer in the gasoline feed pipe will cure this too frequent cause of trouble.

ABRAM AUSTIN,
Yonkers, New York.

Frequent Adjustment Unnecessary.

WEAK mixture, not enough gasoline, is indicated by loss of power, skipping explosions and clear but not strong sound of exhaust.

Heavy mixture is indicated by "four-cycling" in two-cycle engine, black smoke at exhaust, slowing down of engine and a "punkey" smothered sound of exhaust with loss of power.

Having a single adjustment carburetor, run engine at full speed, driving boat ahead and adjust until greatest speed is attained, which is indicative of greatest power and economy.

Having carburetor with spring controlled air-valve, slacken spring to least tension, run engine at full speed with throttle wide open, driving boat ahead and adjust needle valve until greatest speed is attained. Then slow down engine and leaving needle valve as it is adjust spring of air-valve until engine runs smoothly at slow speed. Now leaving air-valve secured in new position run at highest speed again and see if changing needle valve will give better results.

The air-valve should not need changing for some time, probably a season, but the needle valve may sometimes be adjusted to advantage. Ignition must be perfect before carburetor is adjusted.

HOWARD G. PAGE, Shirley, Mass.

Observe Color of Flame.

THE accepted method of determining faulty carburetor adjustment is to observe the color of the flame produced by the combustion. This may be done readily by opening the priming or pet-cocks.

To adjust the average carburetor start with the throttle valve a trifle open, turn the needle valve about one-half open, flush the stale gasoline out of the float chamber, throw the switch and start the motor. Proper adjustment or mixture is obtained by slight manipulation of the needle valve.

Black smoke accompanied by a red flame denotes too rich a mixture. Close needle valve slightly. Yellowish green flame signifies that the mixture is too weak; open the valve

a trifle and after a bright blue flame appears open the throttle valve gradually. If the motor misses explosion and there is no black smoke or red flame present it is evident that the mixture is not quite rich enough; open the needle valve until the explosions are regular and without smoke in the exhaust.

Then try controlling through wide range on the throttle. If the firing is regular when turning over slowly, but misses when the throttle is opened up, the fault is in the air adjustment. This may be overcome by tightening the spring behind the air-valve. Slack off on the wing nut and turn up the middle nut a couple of turns, then lock tightly by tightening the wing nut until a trial determines whether the adjustment is right or not.

If not correct, make adjustments a little at a time until the motor will run at all speeds without showing black smoke. Then lock the wing nut permanently; the adjustment is complete, except for setting the throttle stop so that the motor will run with the valve closed.

C. PETERSON, Brooklyn, N. Y.

Several Tests.

THERE are several means of determining faulty carburetor adjustment and I shall describe the most successful:

I first ascertain that the ignition system and the compression are as they should be and then start the engine and allow it to become normally warm. From this point either the throttle-valve, air-valve, or float-valve test may be employed, but as a preliminary, I use the throttle-valve in the following manner. Supposing the engine to be running with partial throttle opening, I then retard the spark to the starting position and quickly open the throttle; if the engine slows down and back-fires through the carburetor the mixture is too lean, or if it chokes and explodes in the muffler or exhausts black smoke and red fire, the mixture is too rich. If the mixture is correct the motor speed will increase without any signs of missing or irregular action. The test is best applied with the engine running light.

The air-valve test is a very efficient one when applied to a carburetor having a spring controlled automatic air-valve accessible for manipulation in the following manner: With the engine running under any one set of conditions should the engine speed increase upon the air-valve-being slightly depressed, the normal mixture is too rich, but should the speed diminish, it is either correct or too thin already. The float-valve test is applied in the same manner and when carefully done is more sensitive than the air-valve test. After it has been determined in which respect the mixture is at fault it is a very easy matter to correct the nozzle adjustment.

The air-valve is now ready for adjustment and care must be exercised in doing so. When the engine is not running the valve should rest very lightly on its seat, and when the nozzle adjustment is made for the slowest running speeds it should be held firmly upon its seat, air being admitted through the regular opening only. Now assume that the correct nozzle adjustment is attained for the slowest speeds and a test shows that the mixture is too rich at the higher speeds, requiring more air through the auxiliary air-valve, which should be supplied, not by backing off the spring adjustment, but by removing the spring and unwinding some of its coils, making the spring more limber, but retaining its former length in order that the air-valve may still rest lightly on its seat with the adjusting nut in the same position. Should the mixture prove to be too lean at the higher speed, the spring should be removed and a portion cut off, then stretched to its former length and restored with the original adjustment.

Before attempting these adjustments it should be ascertained that the float chamber and supply pipe are clean and free from any foreign substances, and that the needle-valve and float-valve are in such a condition as to properly perform their respective functions.

FRANK K. GREEN, Salem, N. J.

My Next Cruiser.

Some of the Features That Will be Incorporated in the New Boat That is Now Being Built.
Conclusions Based on the Experience Gained With Several Other Boats.

By J. Walter Scott.

THE building of a cruiser is a compromise. If you are experienced, you build smaller than you would like, because your pocketbook is not larger. If you are inexperienced, you do not crave a large craft, but usually, by the time the modest one is completed and equipped, you know personally what a financial stringency means. When it comes to the design, construction details, and materials, and even with unlimited means, it is still a series of compromises.

Some people order boats like Easter bonnets; it is Betty I, Betty II, Betty III, and so on, until they run out of Roman numerals. This description of a cruiser will not appeal to such men, but to those who want a real comfortable home on the water for one or two month's outing, she is well nigh ideal, aside from the compromises to be mentioned. I shall describe her as a home, pointing out the good features, and at the same time mentioning the sacrifices that were made to get features that seemed, or actually were, more desirable.

She is 45 ft. L. O. A., and 9 ft. 6 inches beam, with a fairly good rake to the stem, and a compromise stern. The remainder of this description will be more along the lines of her home making qualities.

THE midship deck is the open air "living room," so to speak. It is not on top of a raised deck, where you are so high that the women aboard have a sense of insecurity, where the wind gets a full sweep at everybody, where the canopy must necessarily be stretched on pipe stanchions, and is so high that it does not give much protection from the sun, and none in case of rain. These raised deck types are certainly good sea boats, and give a lot of cabin room for the length, but they are not home-like. This cruiser hasn't even a bridge deck, but a depressed deck, or you might call it a cockpit amidships. It is low and permits of a permanent canopy, light, but strong, that is not unsightly, and yet gives perfect protection from the sun and rain, especially when side curtains are on. There is a hunting cabin forward, and a trunk cabin aft, so that this space, 8 by 9 feet, is a cosy, comfortable spot that everybody aboard can enjoy. The owner can steer and at the same time enjoy the society of his family and friends. To those aboard who desire more of the breezes and a sun bath at the same time, there is a small after deck, flush, protected by a railing.

THE motor is under the depressed deck, where the headroom is limited. "A great mistake in design," I hear some reader say. Yes, when motors were so poor that there had to be a competent engineer on the job every minute to keep them going. No one expects full headroom under the bonnet of an automobile. I have had some poor automobiles, but with a little attention in the morning, any one of them would run ten hours continuously without ever lifting the bonnet. Well, this cruiser has a reliable marine motor. The owner expects to don overalls every morning and look the motor over, inject a few drops of oil here and there, and depend upon the positive lubrication system to take care of the motor for the next ten, yes, twenty hours of continuous running. And it will do it.

I hear another reader grunt, "no engineer?" I answer, "no engineer, likewise no cook." My personal experience on the Great Lakes has been that you can't hire a competent engineer just for a summer job, and as for a cook,

well, the cook that you can hire for this summertime job is so "sloppy" that you would not have him aboard, much less eat what he prepared. On this cruiser the owner is navigator, engineer and deck hand. His wife is steward and cook.

Out in the "wild and wooly west" there is lost of wealth, but it is still in the first generation. The man who possesses it, made it, consequently, he has not arrived at the point that he feels the pressing need of a valet, and his good wife, while she may have a house full of "help," has not forgotten how to cook.

BUT I digress. From this depressed deck we pass forward to a companionway, leading to the owner's stateroom. On each side of a passageway, leading to a fully equipped toilet room in the forepeak, are permanent berths, high up, to get more width, and also to give room beneath for double sections of drawers. This "private stateroom" really is private, for there is a deck between it and the main cabin, and you have an opportunity of telling your wife that guests aboard, bosom friends, certainly have developed some little depressing mannerisms, or else the close, intimate confinement of the cruiser magnifies things you have never noticed ashore.

I recall one cruiser on which for six weeks I never had one moment's private conversation with my wife. If we lay in harbor and I went ashore for provisions, there was always some one of the guests that wished to go too. If I requested the guest to do the marketing, and remained afloat, and at the last minute, when all others were prepared to go ashore, my wife decided to remain with me to keep me company, there was sure to be some good natured guest to cry, "it is a shame to leave you two all alone, I shall remain." The average cruiser is a nightmare of compartments and doors and passageways, but even a whispered word in the dead of night, carries true and can be heard distinctly all over the boat. It will be different on this one.

Another feature of this arrangement is, that if one of the male guests is writing a letter in the main cabin, and the women wish to dress to go ashore and mail the postcards, why, they may retire to the stateroom and dress in privacy.

GOING aft from the depressed deck, down the companionway stairs, you reach the main cabin. On each side of the stairs is a full length, deep clothes closet. Next come wide transoms, that extend until they meet the permanent drop-leaf table in the center. These transoms are like great davenport. This room is the library, so to speak, of the boat, for it is a place to read and write on rainy days, and it is also the dining room by day, and the dormitory at night. It is 9 feet long. From this cabin leads a four-foot passageway, on one side of which is a large bureau, and on the other, a large, extra large for the size of the cruiser, toilet room. Next comes the galley, four feet deep and the full width of the boat. It is unusually large, in fact as large as some kitchenettes in New York flats I have seen. This galley is a real kitchen, equipped with a sink and pump, a drain board, a three burner alcohol stove and all kinds of lockers, racks, etc. I have observed cruisers by the score, on both sides of the Atlantic, good cruisers with many admirable features, but I have yet to see one under sixty feet that had a galley that equalled this in appointments and ventilation. How different from the conventional galley in the en-

gine room, where the odors of burnt cylinder oil permeate the food, and where the cook swelters in the heat radiated from an engine that continues to radiate, even after shut down for a half hour.

This galley takes up a lot of space, and it is worth it. There is an icebox built under the after deck and filled from the deck, but with double doors into the galley. There is a fresh water tank athwartships, on the quarter deck, with a cosy seat built over it. This is a convenient place to install the tank, and it also breaks up the box-like appearance that characterizes all trunk cabins when viewed from astern.

The fresh water tank has a pipe leading through the ice box to a faucet in the galley. The pipe passing through the ice box is large in section, and holds enough water that there are always two or three glasses of iced water on tap.

WITH the two cabins separated by a deck, it does away with even a fancied necessity for numerous doors, and good, pure air has a full sweep through both cabins. The main cabin on this cruiser is identical in arrangement with one on a smaller cruiser where there was no stateroom, and there was never any odor of cooking ten minutes after a meal was out of the way, and no stuffy odor in the cabin. The screening system is perfect and there will be no more annoyance from flies or mosquitos than at home. There are but two main doors, outside doors, I should say, and both are perfectly screened and fitted, not with ordinary sliding hatches that can't be perfectly screened, and which will leak if the wind drives the rain in the right direction, but with sliding scuttle hatches that are water tight. There is not a sliding hatch on this cruiser. The other two hatches are box hatches, and also guaranteed not to leak, and anyway neither of them open into the cabins.

Below decks everything in the nature of a fitting or fastening is brass or bronze, so she may go to salt water if desired, but above deck all fittings are galvanized and painted, for the owner does not desire to spend half of his vacation polishing brass.

IN a recent article on fitting out, I notice the writer says that a four-inch card compass is large enough for any cruiser up to sixty feet. I had just this size on my first thirty-six-foot cruiser; it was of the best make but not satisfactory. The one on the new cruiser has a 6½-inch card, the same as carried by most of the lake freighters, the 600-ft. ore carriers. Such a compass is none too large. All of the equipment is of the same generous type. In equipping a boat, always go the builder one better. If he says a two-burner stove is just right, buy a three-burner one, and later you will congratulate yourself.

I neglected to state that all cabin tops, and the depressed deck as well, are canvas-covered and are easier to keep clean and presentable than wood, and then they don't leak. You can appreciate this feature if on a dreary, chilly, rainy day you have ever tried to caulk the inside of a cabin roof with a towel and found that it could not be done.

THE fenders on all the cruisers I have ever seen are too small. It is not unusual to see a 45-foot cruiser with but a 1½-inch fender, and I have seen them up to 60 feet with but three-inch fenders. A friend of mine had seven feet of planking torn out one

night in making a dock with his 40-footer, though he had three rope fenders over the rail. I insisted upon five-inch fenders on this new cruiser. The builders argued it was not "yachty," etc., and had never been done on a yacht before. I notice the lowly tug has real fenders, and it has to go every place, in every kind of weather. The argument against large fenders is, that you may get under a projection of the dock or a pile and cause damage. You do the same with three-inch fenders; but if you know your business and

are careful, you don't, for I reiterate: the tug comes up to dock in bad weather and doesn't come to grief.

I also wanted bilge keels, which I notice all the government vessels have and swear by, but was talked out of this, likewise out of having a small fender about fourteen inches above the water line to protect the hull from row boats and small launches, which, with the whole harbor to maneuver in, invariably bump into your new cruiser when you go into dock to take on gasoline. Now this five-inch

fender is on, it really doesn't look so big as was anticipated, and it will certainly do away with the usual wild scramble at the last moment in making a dock.

* * *

IN conclusion, it is a good boat, well built, with a fair cruising speed. She would not suit the speed mania mariners, the finicky few, but she would suit many, and no man could get in very badly by building along similar lines.

H. M. S. Aunt Kate--House Boat.

The Description of a Wonderful Craft That Plies the Inland Waterways of Michigan.
Her Many Unique Features and Something About Her Construction and Power Plant.

By W. A. Sibley.

AUNT KATE is a houseboat. Her design, perhaps, does not follow the most approved practice in such craft, due to complete ignorance of all things nautical, in her designers, but she was built with a view to economy first, and then comfort and practicability. In short, she is simply a cabin scow propelled by side wheels.

The scow is 21 feet long by 6 feet beam and is 20 inches deep. Its construction is of the simplest, the side pieces being of single yellow pine boards, 2 inches in thickness, tapered at both ends and to which the tongue and grooved $1\frac{1}{2}$ inch bottom boards are screwed transversely. Candle wicking soaked in white lead was laid in the grooves and the planks were drawn tightly together with clamps before being screwed down. As a further precaution against leaks, strips of muslin soaked in white lead were placed between joints wherever possible.

A scow is certainly not graceful in its lines,

but is without doubt the most inexpensive and easiest of all types to construct. A single two-by-four running full length of the bottom, forms the keel, but later experience showed that a deeper keel would have been much better, owing to the winds encountered on the lake where she is used.

Two parallel strips are laid inside on either side of the keel, further stiffening the hull and partially supporting the false bottom. The engine is supported by two pieces, 2 x 8 inches, placed transversely and thoroughly secured.

Side wheel propulsion, while not as simple, and while much more expensive to install than the ungainly stern wheel, certainly is much neater, and efforts were made to have Aunt Kate as neat and trim as a nice old lady should be. I say the side wheel construction costs more—this is due to the gears necessary in our case at least. Since the most economical speed of the engine is 600 r. p. m. and

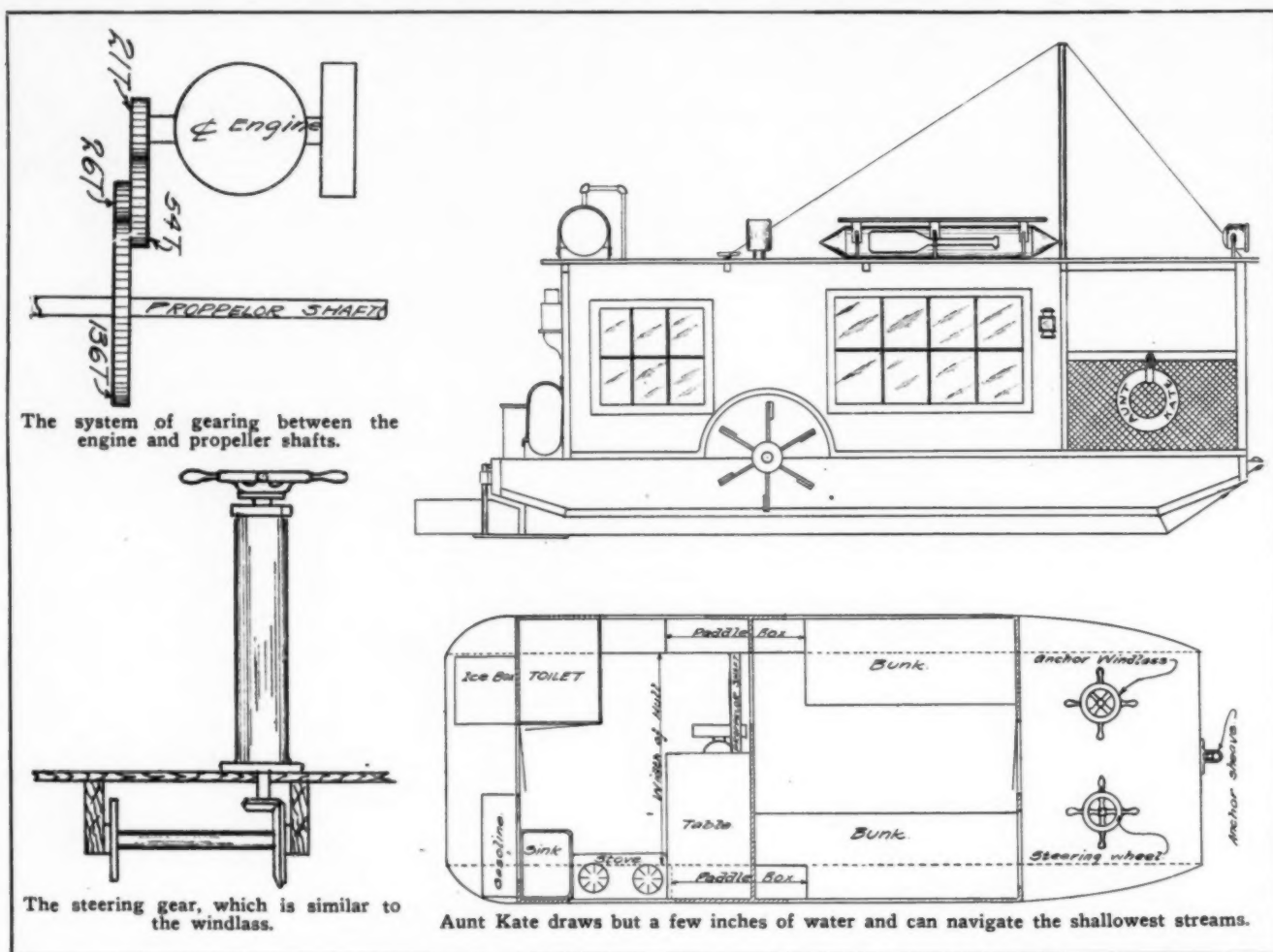
that of the paddle wheels about 45 r. p. m., a reduction of 13 to 1 was necessary, requiring a double set of gears, as the space available was limited. A chain would no doubt be simpler, but we preferred the gears simply because we had facilities for making them.

Cast iron hubs with inserted steel spokes, to which are fastened the wooden paddles, make a very simple and sturdy type of paddle wheel. There are three bearings on the main shaft, bronze-bushed and fitted with oil cups. A four horse Northwestern engine supplies the power, and while it does not develop much speed, it is enough for steerage headway, and sufficient, as Mark Twain once said, to race the woodpiles on the river bank.

White pine being the lightest material available, was used throughout for the cabin. In order to have plenty of room, the house extends a foot beyond the sides of the scow. This construction has the advantage that no holes need be cut in the bottom for the sink



Aunt Kate startled the transportation company's agent, who billed her as a "Fish House."



waste pipe, water intake, etc., as these all run through the overhang.

There are two rooms, the forward one being the living room and fitted with two wide bunks as shown in the drawing, while the after one is devoted to the galley, tool lockers, cupboard and toilet. Cooking is done on a two burner oil stove, and the sink, with running water, is a great convenience. This is supplied, as is the toilet, from a 60-gallon tank on the roof. This tank is filled by a gear pump on the engine, which may be thrown in and out at will. An ordinary acetylene generator furnishes gas for the two rooms and a searchlight. The side lights are ordinary automobile oil lamps.

We have made a very elaborate steering gear, as shown in the sketch, all finished in white enamel, brass, and red paint. The anchor windlass is of similar design, and, like nearly every other feature of the boat, the anchor is quite out of the ordinary, but is quite practical for this type of boat.

On the back porch (you would probably call it the after-deck) are the gasoline tanks, the generator and the ice box, and the railed in "front porch," which has somewhat the appearance of the front platform of a trolley car, is an ideal place to sit and smoke a corn cob while Aunt Kate kicks her peaceful, if somewhat asthmatic, way up the stream. Her shallow draft permits her running up the

many small creeks and shallow coves, where there is excellent bass and pickerel fishing, and of all the mild forms of amusement we have tried, Aunt Kate has given us the most wholesome and thorough sport we have enjoyed. It is true that the first weeks after she was launched, the willful old lady gave us no end of trouble, partly due to the improper construction of the paddle wheel, but more particularly due to the freeboard being too low (this was raised later). In fact, she sank so many times, that we had to measure her speed in fathoms rather than in knots. However, with the canoe tender, "Cousin Rufus," life preservers and life rafts on the roof, she is now thoroughly safe and practical.

The Cheap Installation.

By George S. Hudson.

I WILL describe the method employed by a boatbuilder who converted a Grand Bank dory for power, his charge for the work being \$12.

A skeg, of 2½ in. oak, extended from two feet forward of amidships to the lower end of the V-shaped transom or stern board which, in this type, has excessive rake. The depth of the skeg, at the stern where it was cut off plumb, was 10 in. to give plenty of space for the propeller. A block of oak, same thickness as the skeg and about 6 in. wide was fitted to the after end of the skeg with its top bevelled to conform to the angle or rake of the stern-board. This block formed deadwood through which the hole for the shaft was bored with a 1¾ in. auger. The inside knee found in dories where stern-board meets bottom was removed and a stouter knee shaped to carry an inside stuffing-box or bearing, was nailed in place and the shaft-hole was also driven through that block.

The outside block and inside knee were set in white lead to insure a tight job and lag screws were used for fastenings where they could be set up without danger of splitting out. Stop waters of soft white pine were driven into ½ in. holes bored through outside block just above and below the shaft-hole close to the stern-board to preclude possibility of leaks around the shaft.

Foundations for the motor were fitted about two-thirds the distance from bow to stern, depth of the foundations being sufficient to keep the balance wheel four or five inches above the boat's bottom. Material used was 2½ in. oak and a snug fit was secured by making a templet. The foundations formed heavy cross floors and were bolted down through the skeg.

A string stretched from the center of the shaft-hole to the top of the foundations determined the height of longitudinal bearers which were morticed into the foundations to

carry the bedplate of the motor which, in this boat, was a 5 h.p. single cylinder, 2-cycle.

The exhaust pipe was led directly through the side of the boat abreast the motor, a water-cooled silencer being used. Circulating water was drawn through the garboard and a piece of hose leading over the gunwale disposed of the discharge. A seat just forward of the motor was boxed up for batteries and spark coil and tool kit. An iron shoe was fastened to the skeg, its after end turned over and bored to receive the rudder pintle. The rudder post passed through the upper part of the stern-board, strengthening blocks being fastened on both sides of the latter.

The gasoline tank of 10 gallons' capacity was secured to a shelf built into the bow and covered by a short deck. Another bit of deck was added aft and staved up with small door, for stowage. The carpenter's bill did not include the decks which might have cost an additional \$5 had he done that work.

New Motor Boat Designs.

THE plans shown below and upon the following page are those of a fast day-cruiser designed by Bowes & Mower, the Philadelphia naval architects, for a New York yachtsman, for use on Long Island Sound.

The boat is 36 feet 6 inches on the deck, with a beam, at the deck, of 7 feet 2 inches, and a draft of 2 feet 6 inches. The idea in designing this craft was to combine the qualities of an able, fast day-boat, with those of a fast cruiser, so that the vessel could be used as a tender for a racing yacht or for short gunning trips.

A large self-bailing cockpit is provided aft, fitted with a thwartship seat with lazy back, making a very comfortable lounging place out of doors where a good view can be obtained. The remainder of the cockpit is left open so that wicker chairs may be used. At the forward end of the cockpit is a bridge deck three feet long and the motor is located partly under this deck. At the after end of this the steering gear is located with controls from the engine. The rear starter is carried through the after bulkhead of the

A Fast Day-Cruiser.

bridge deck so that the motor can be started and handled by the man at the wheel without difficulty.

The companionway to the cabin is upon the port side and leads down from the bridge deck to a steerage located in the forward part of the vessel. On the port side is a large locker for oil skins, coats and boots and on the starboard side is an icebox with a space over it for a small stove. The motor extends partly into the steerage and the rest of the motor is under the bridge, so located that it can easily be reached if necessary for repairs. This is accomplished by eliminating a bulkhead at the forward end of the bridge, making the engine accessible from all sides.

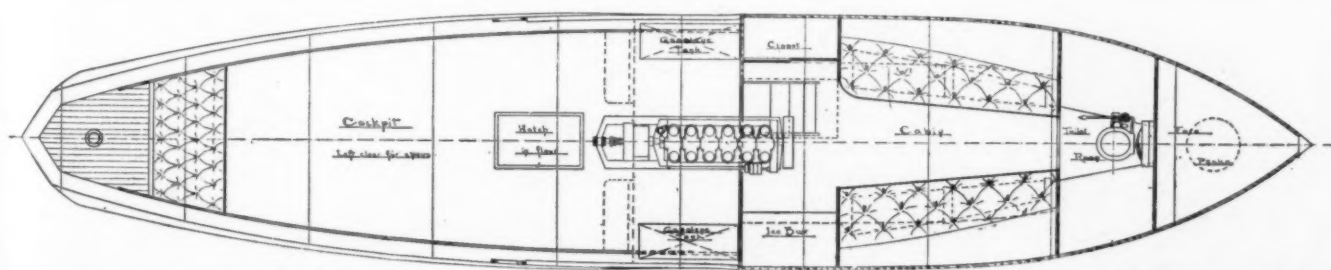
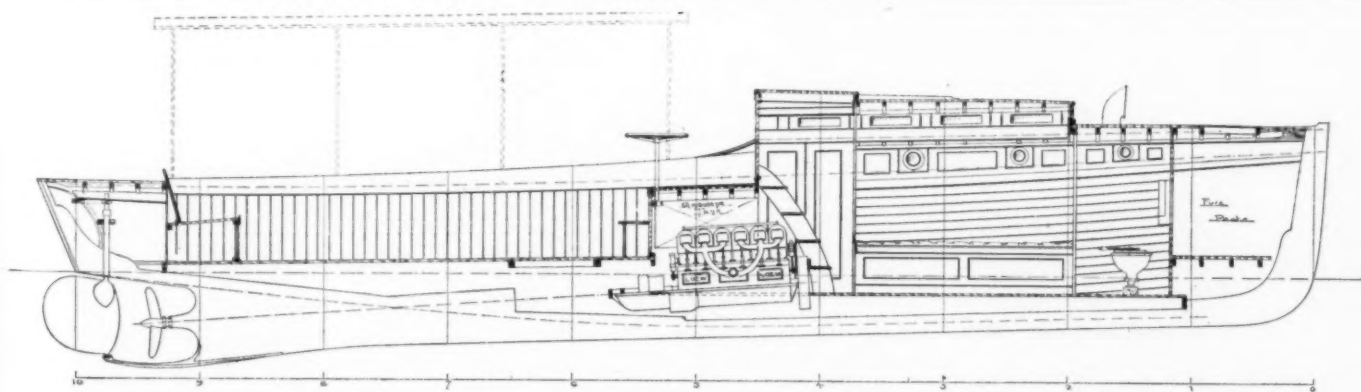
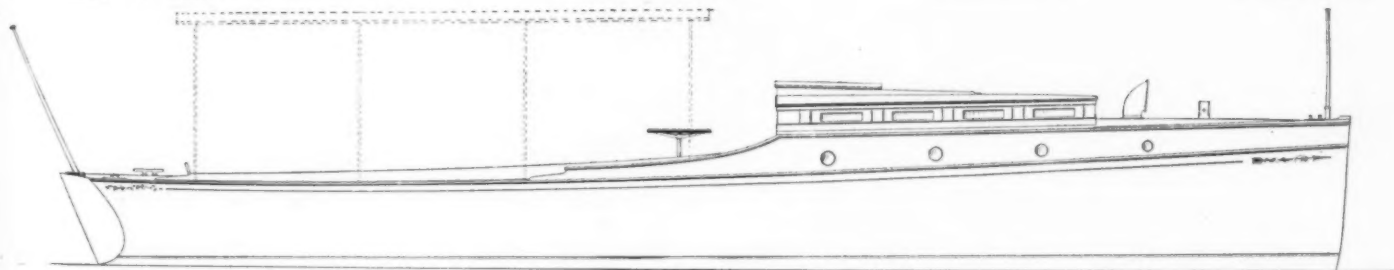
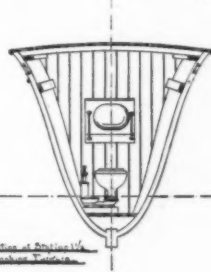
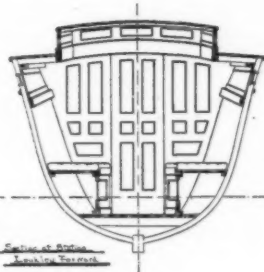
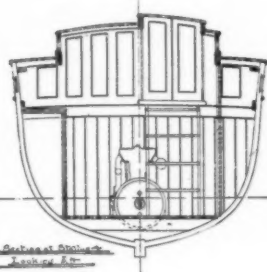
Forward of the steerage is the cabin with an extension transom on each side so that

two persons can sleep comfortably while cruising. Forward of this cabin is the toilet room, fitted with a Goblet Dolan toilet and a folding lavatory. The fore peak is forward of this toilet room and is provided with a flush hatch opening into it from the forward deck.

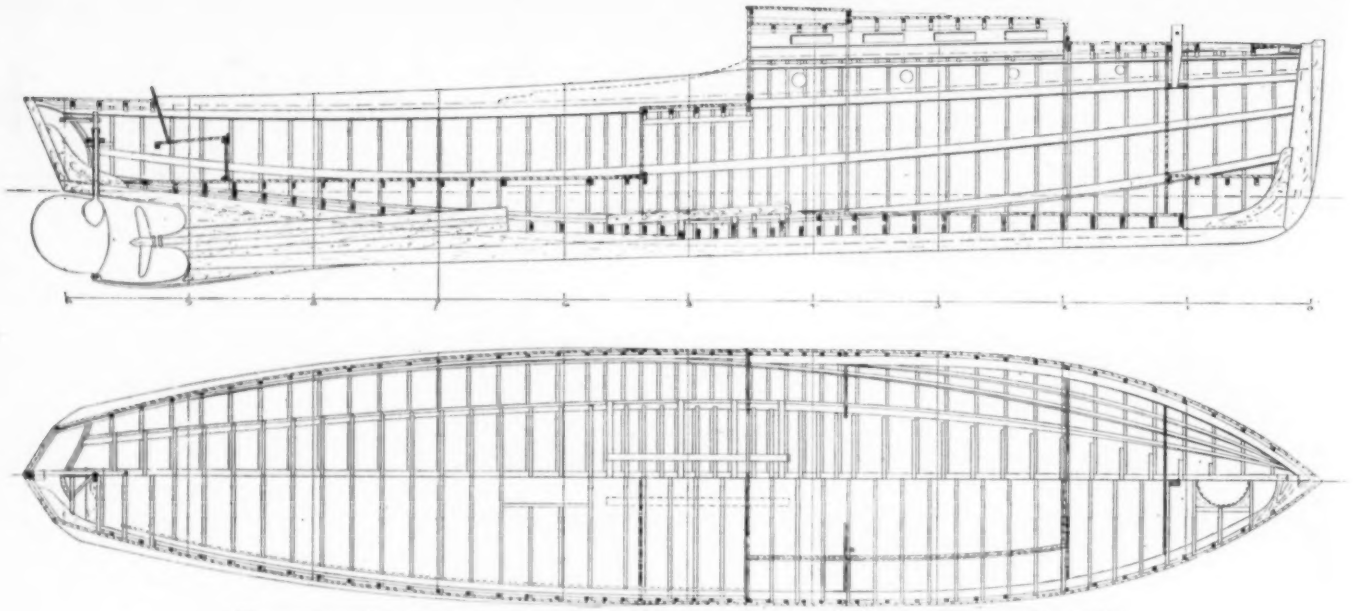
A feature of the boat is the comparatively high headroom, which is 5 feet 6 inches throughout. This has been obtained by placing a low mahogany trunk, equipped with windows on top of the raised deck. In this manner the long, low appearance of the boat has been maintained without sacrificing any amount of space for headroom.

The power plant consists of a six-cylinder Loew Victor motor and a speed of 16 m. p. h. can be maintained. The skeg and deadwood have been carried down to protect the wheel so that the boat can be used in shoal water. Awning stanchions extend from the

bridge deck to the rear of the cockpit, so that the entire open space may be covered in. Ventilation is secured for the motor room through the ports in the raised deck section and for the toilet room through a cowl.



A fast cruiser with pleasing lines and comfortable accommodations designed recently by Bowes & Mower for a New York yachtsman.



The construction lines of the Bowes & Mower cruiser described upon the preceding page.

A 39-Footer for Coast Cruising.

A POPULAR model of the type of small cruiser is shown below in the design by William J. Deed, Jr., of Boston, who has just designed this craft for a New York owner. She will be used principally for cruising along the coast. The design of the boat is such, as will be noticed from the plan of the arrangement below decks, that the owner and his guests have an unusual amount of privacy as the crew, if a crew is necessary, are quartered aft. This leaves the forward cabin and the entire cockpit free for the use of the owner.

The boat has been designed especially for heavy weather, since it will be used for cruising along the coast, and in somewhat unprotected waters, and is a fine sea boat, owing to the fact that the weights are centrally located and well balanced. When the hatches are battened and covered, the craft would stand almost any amount of tossing about.

This vessel is 39 feet over all length, with a beam of 9 feet and a draft of 3 feet. The least freeboard is 3 feet and the headroom is 5 feet 10 inches aft, and 4 feet 3 inches for-

ward. A stateroom, with two berths, is located in the extreme bow of the boat and aft of this is the saloon, fitted with two extension transoms, which will sleep four people if desirable.

A three-cylinder Blount & Lovell motor is located aft of the saloon, and upon the starboard side of the motor room is a companion-way leading to the cockpit. Upon the starboard side are also a sink, ice box and stove. Upon the port side of the motor room is a wardrobe, and just forward of this a toilet room, fitted with linen shelves.

A small bridge deck is located upon the port side of the cockpit, which is surrounded by seats. The cockpit is watertight and self-bailing. The after cabin contains two transom berths, which are reached by a step from the cockpit. Ample locker space is provided in the cabins and staterooms.

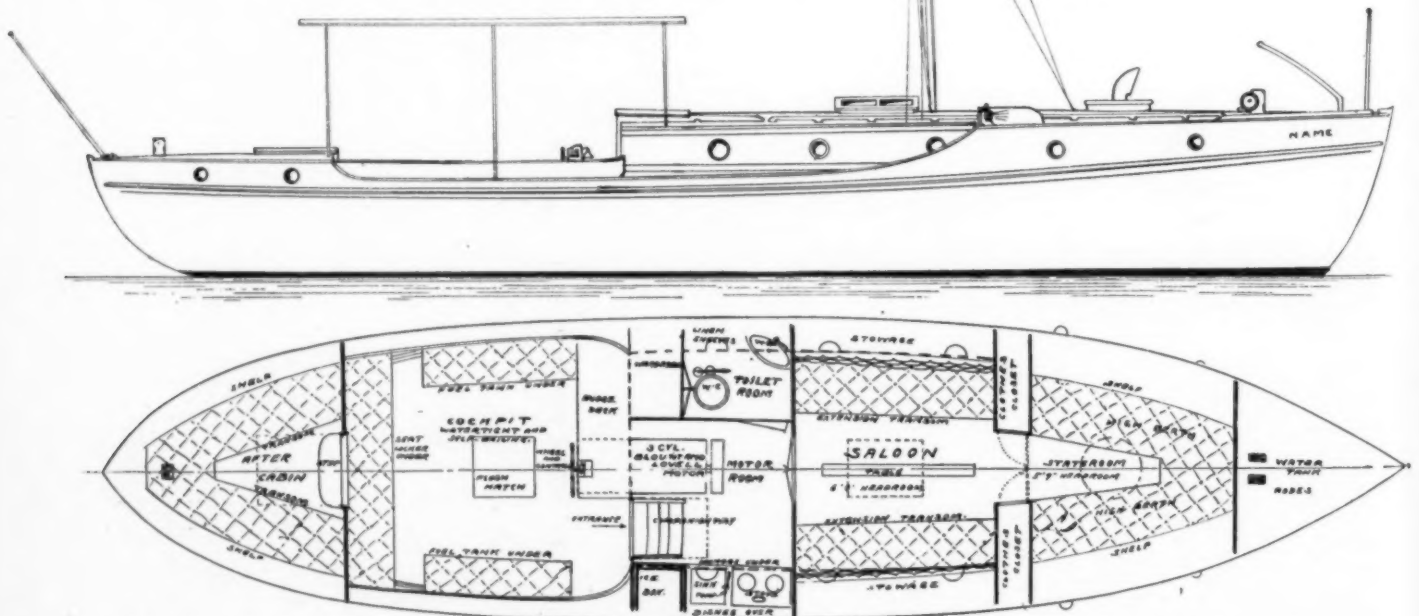
Under the seats in the cockpit, which are 8 feet 6 inches long, are two 50-gallon cylindrical gasoline tanks. A

flush hatch is provided over the reverse gear and stuffing box, and the bridge deck over the motor furnishes access to it when desired. The motor is four cycle, 20 h. p., at 450 r.p.m., and drives the boat about 10 m.p.h. The interior finish is mahogany and white.

The lines of this craft are rather more graceful than the ordinary type and the covered cockpit placed as it is, gives a pleasing variation from the usual location in the extreme stern.

The cabin aft, while possibly rather small for common use, will prove very acceptable for providing extra room. Furthermore, its location gives greater beam to the cockpit and it occupies space which would doubtless not otherwise be used except for somewhat inaccessible storage quarters.

Good ventilation is insured throughout the whole boat by the ports, skylight over the motor room, hatches, and a ventilating cowl opening into the main stateroom forward.



The 39-foot craft designed by Wm. J. Deed, Jr., is fitted for coast cruising and is equipped for running in heavy weather.

Lexington II, a Sixty-Five Foot Motor Yacht.

JULY, 1911.

New Motor Boat Designs.

27

LEXINGTON II was designed by Cox & Stevens, of New York City, for a member of the New York Yacht Club, and was launched by her builders, the New York Yacht, Launch & Engine Company, upon May 22nd. She is 65 feet over all, with a beam of 11 feet 8 inches, a draft of 4 feet 3 inches, and is equipped with two 30 h. p. Twentieth Century motors, which will drive her at a speed a trifle better than 14 miles per hour.

The vessel has a plumb stem from which a turtle back is run to the deck house. For a distance of one-third of the vessel aft from the deck house, the

sides are carried straight up, giving a large central bridge, at the end of which the foreboard is reduced and a trunk cabin worked over the after quarters. The stern is of the steamer type, the hull proper being carried aft at the water line with the rudder entirely submerged.

The living quarters for the owner and guests are below aft, to which access is had through a companionway on the starboard side. This opens into a lobby, which may be used as a stateroom. Opening off from this is a bathroom of good size. The extreme after portion of the vessel is also laid out

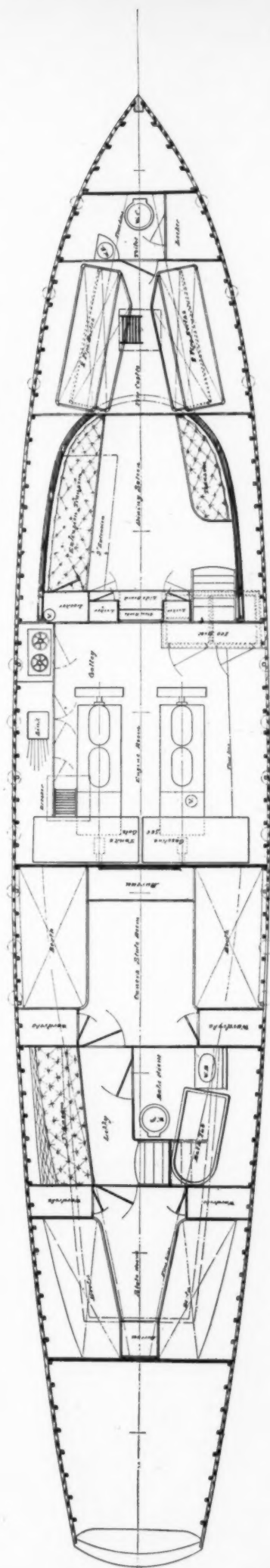
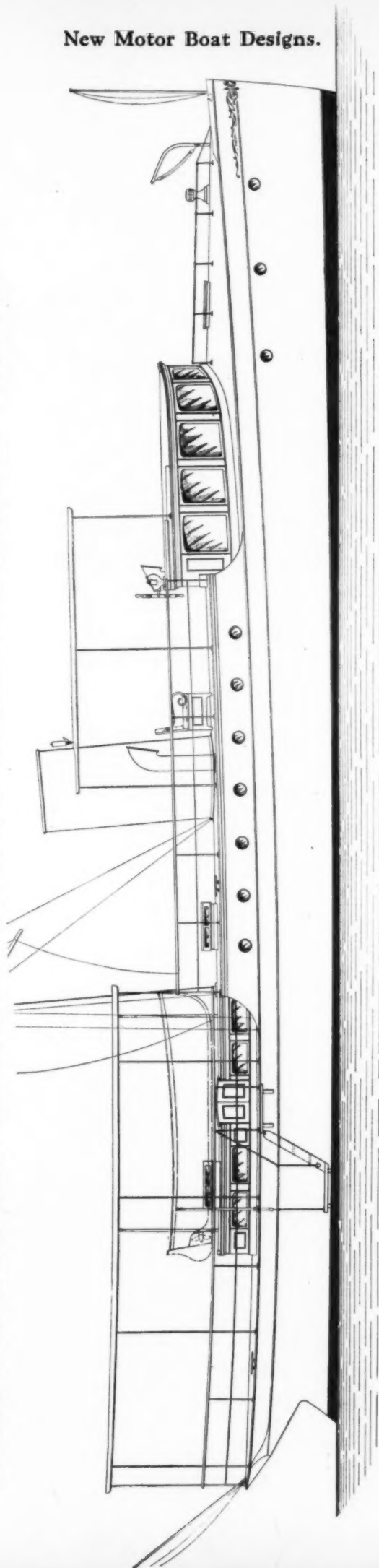
as a double stateroom and connects with the lobby. The finish of this portion of the vessel is entirely Colonial.

An attractive feature is the dining saloon, which is in the deck house forward, and which is unusually large for so small a craft. It is sunk into the vessel, but is sufficiently high to have good-sized windows, affording light and ventilation. This house is paneled in mahogany and has a door leading to the center deck.

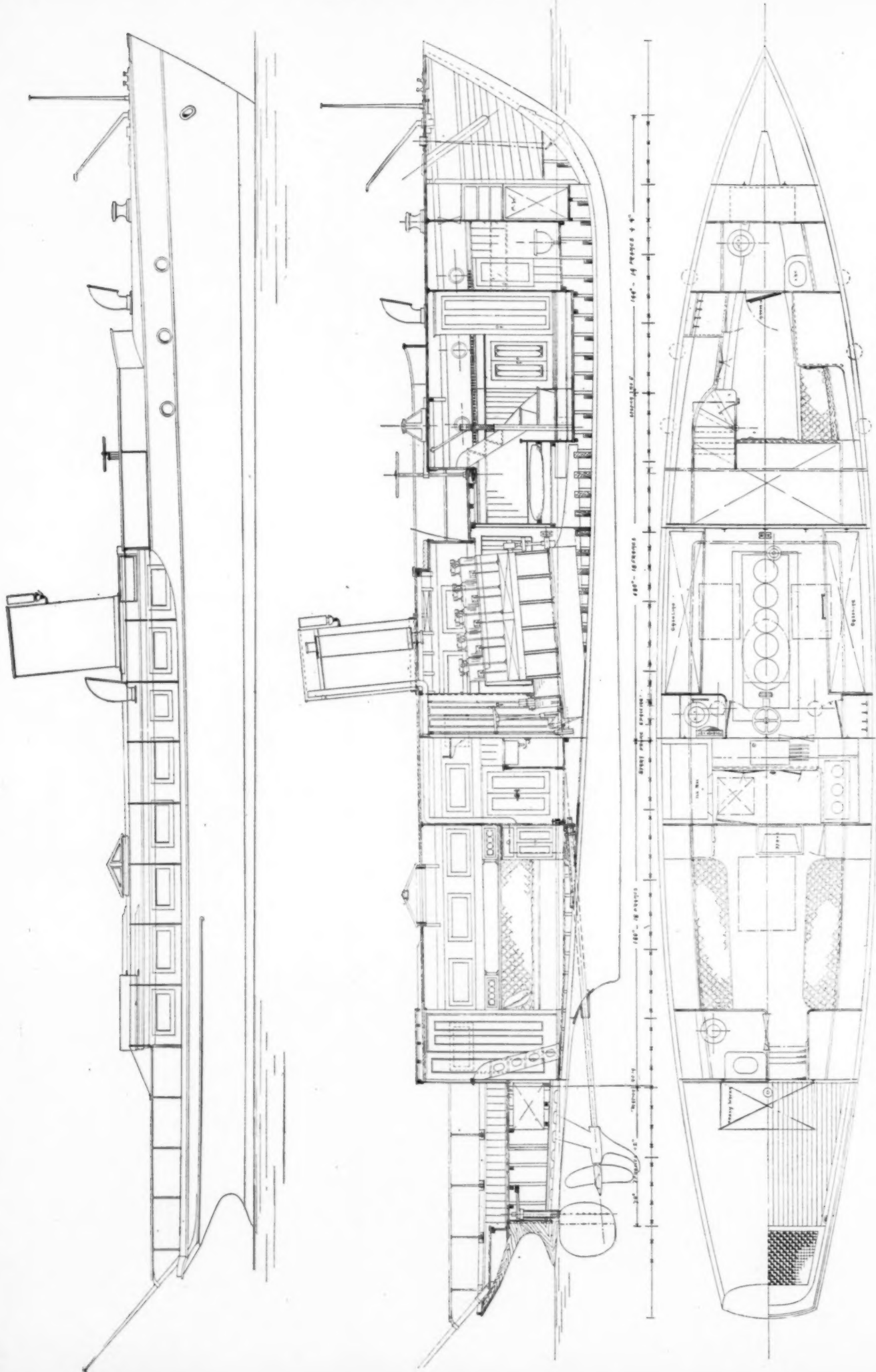
The motor room is located amidships and contains, in addition to the main motors and fuel tanks,

a complete electric light plant. A portion of this room is also fitted as a galley. Above the engine space, is a large stack, used for ventilation, and for carrying the mufflers. The space below the dining saloon is utilized for water tanks and the crew's quarters are forward where the turtle deck construction allows plenty of headroom.

The vessel contains most comfortable cruising accommodations, and has a great deal of available deck space. She is attractive in appearance and there is every reason to believe that she will prove a very good sea boat.



Lexington II has the appearance of a much larger boat and her interior arrangements give an unusual amount of room in the owner's and guests' quarters.



A twin screw 56-footer, one of the latest designs by Swasey, Raymond & Page. This craft is described upon the page following.

A Fifty H. P. Tow-Boat.

ONE of the most novel designs for a working boat is that shown below from the boards of Lee & Brinton, of Seattle, Washington, the particularly useful feature of which is the one-man control arrangement. This craft is for the use of the Shelton Logging Company, at Shelton, Wash., and is similar in design to Potlatch and Rival which were brought out some time ago by the same firm.

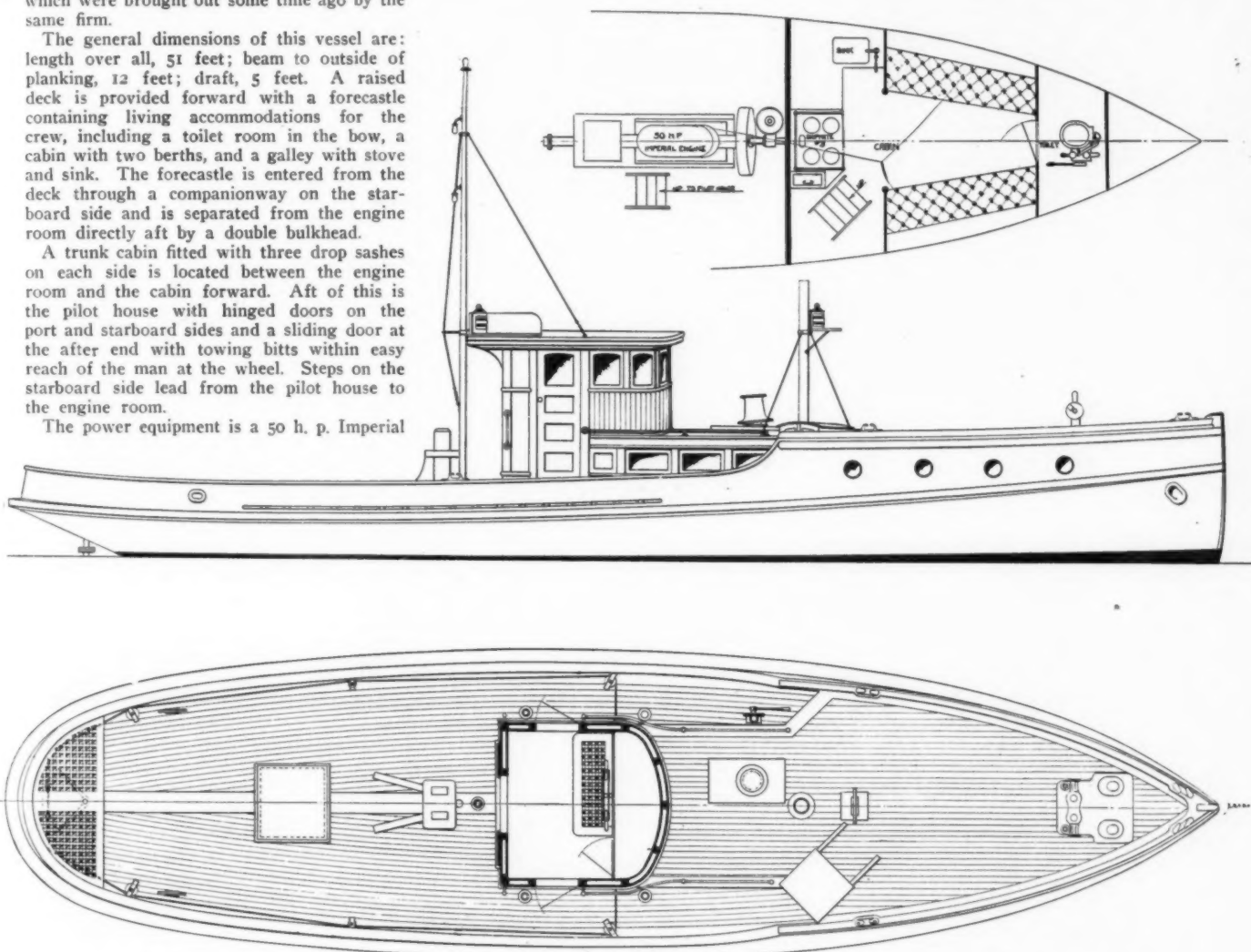
The general dimensions of this vessel are: length over all, 51 feet; beam to outside of planking, 12 feet; draft, 5 feet. A raised deck is provided forward with a forecabin containing living accommodations for the crew, including a toilet room in the bow, a cabin with two berths, and a galley with stove and sink. The forecabin is entered from the deck through a companionway on the starboard side and is separated from the engine room directly aft by a double bulkhead.

A trunk cabin fitted with three drop sashes on each side is located between the engine room and the cabin forward. Aft of this is the pilot house with hinged doors on the port and starboard sides and a sliding door at the after end with towing bits within easy reach of the man at the wheel. Steps on the starboard side lead from the pilot house to the engine room.

The power equipment is a 50 h. p. Imperial

heavy duty motor fitted with an air starting device and a reverse clutch which can be operated from the pilot house. This operation is controlled by a valve operating by compressed air, a cylinder with piston being connected to the reverse lever. A power winch on the forward deck is geared to the main

engine and can be used when the clutch is thrown out and the boat remains at rest. The smoke pipe from the galley stove carries the screen for the bow light. The boat is very heavily constructed throughout to withstand the hard usage to which it will be subjected at a logging camp.



This tow-boat has been designed for one-man control and is to be used in connection with a logging camp in the far West.

A 56-Foot Cruising Launch.

UPON the preceding page are shown the plans of a fast cruising launch built by Swasey, Raymond & Page, Inc., of Boston. The boat is 56 feet in length over all, 46 feet on the water line, has an extreme beam of 9 feet 6 inches and a draft of 3 feet 6 inches. She is equipped with an 80 h. p. Murray & Tregurtha motor of five cylinders and will be launched at the yard of her builders, Murray & Tregurtha, of South Boston, about July 1.

The general lines of the vessel show a raised deck forward and a trunk cabin extending from this to a point well toward the stern, leaving sufficient room, however, for a comfortable amount of deck space aft. The motor controls are brought up to the wheel, which is located upon a bridge deck forward of the stack and a seat is provided for the steersman. A companionway from the bridge

deck gives entrance to the cabin forward, which is intended for the use of the owner. This is equipped with comfortable berths and clothes lockers and a toilet opens off from it toward the bow of the vessel.

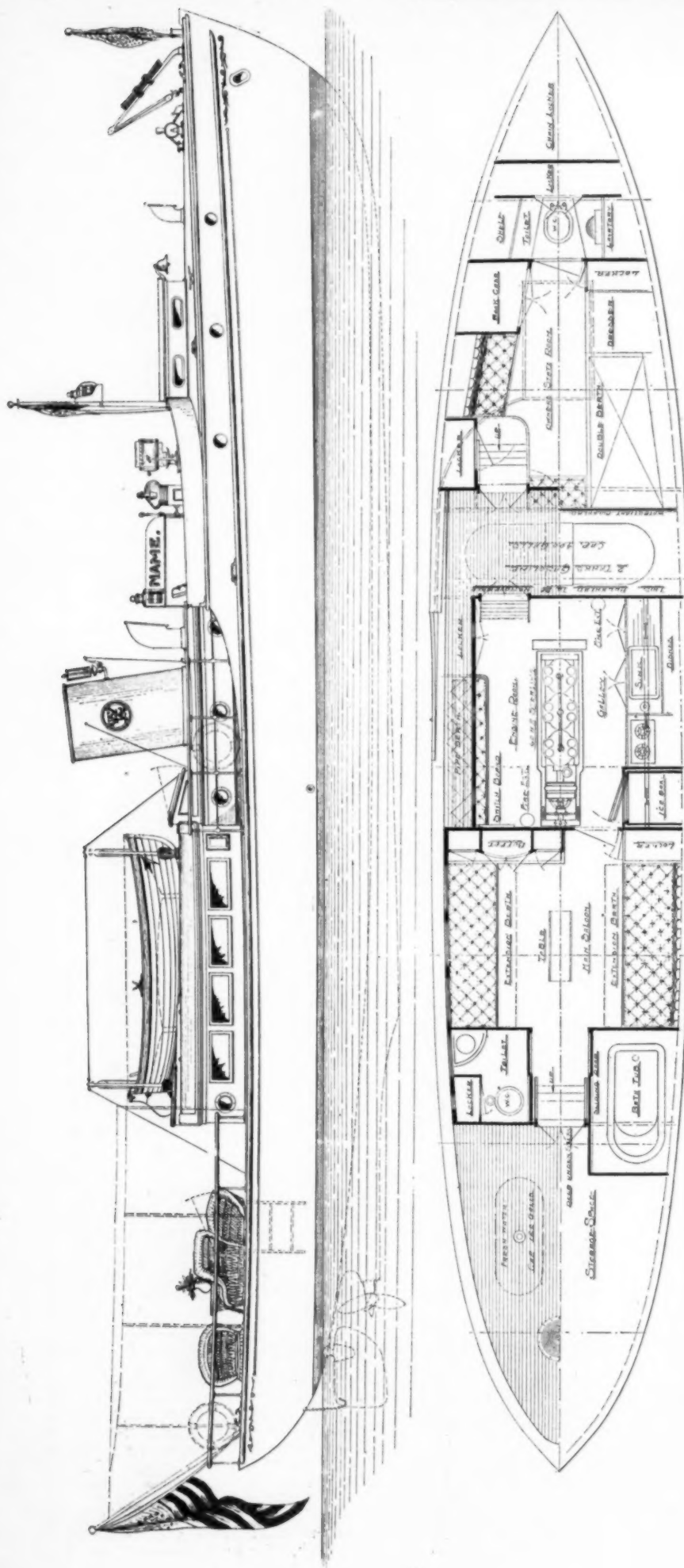
The motor room is amidships, ventilated by a stack, and the gasoline tanks are placed on either side of the motor compartment. Another toilet equipped with a closet and a folding lavatory opens off from the port side of the motor room. Aft of this is the galley equipped with a stove, sink and ice box. This is of sufficient size to provide for all needs and is very conveniently arranged.

At the after end of the boat is a large main cabin opening into the Pullman galley just mentioned. The cabin is provided with comfortable transoms and is exceptionally well lighted from the windows at the sides of the trunk cabin and from the skylight above. At

the after end of this cabin, upon the port side, a toilet room is provided, of comfortable dimensions, and sufficient room is left to the starboard side of the midship section of the boat to give entrance to the cabin from the stern deck by means of a companionway.

A fresh water tank is located under the floor of the after deck and access may be gained to this when necessary.

As a study of the plans will show, the vessel is divided into three sections, each entirely separate and distinct, and the motor room is so arranged that perfect ventilation is secured without interfering with either the forward or the aft sections. The muffler is placed in the stack and a ventilating pipe extends from the top of the stack to the galley, so that all fumes and smoke will be drawn out without the necessity of a forced draught. The toilet room is also ventilated from the stack.



The combined raised deck and trunk cabin design by Mr. Anderson allows a comfortable amount of space below decks and affords a pleasing appearance to the lines.

A 62-Foot Motor Cruiser for Mexican Waters.

THE plans of the 62-foot cruiser shown above were prepared by W. E. Anderson, of Albuquerque, New Mexico. The craft is of the bridge deck type, and presents a very pleasing appearance. The bridge deck forward is protected by a permanent breakwater, and the lines of the hull have been formed to make her a thoroughly able sea boat that can weather any summer storm.

The boat is 62 feet in length over all, has a beam of 11 feet and a draft of 3 feet 4 inches. The specifications called for a hull of very substantial construction throughout, and the interior finish is white enamel and mahogany. Particular attention has been given to the installation of the two steel gas tanks, which are cylindrical in form and are situated in the space beneath the bridge deck. They are

secured in saddles of white oak and the piping between the motor and the gas tanks is of soft, seamless drawn copper tubing. Any leakage that might occur in the connections can easily be reached by removing a section of the forward bulkhead of the engine room.

The owner's stateroom is situated in the raised deck portion of the boat forward, and is separated from the fuel compartment by a steel, watertight bulkhead. This stateroom contains a double berth, a dresser, mirror, lockers and a bookcase. On the port side is a stairway leading to the bridge deck above, from which point the vessel is controlled.

The galley and engine room are amidships, and the power is derived from a 60 h. p. heavy duty Sterling motor, the exhaust leading up through the stack.

On the port side of the motor compartment is a pipe berth, engineer's locker and a locker seat for storing waste, etc. An auxiliary light plant is also installed in this room for furnishing light for the vessel. On the starboard side is the galley, consisting of a refrigerator, a two-burner stove and a 12 x 24-inch enameled sink. This compartment is well ventilated by a skylight, hatch, stack and a large cowl ventilator. On the port side is an iron ladder leading to the bridge deck.

Next aft from the engine room is the main cabin, containing two wide transoms, with extensions, a buffet of attractive design, and a hanging locker. At the after end of this compartment, on the port side, is a toilet of ample size, containing a small locker for linen, water closet, mirror, lavatory, and

a comb and brush holder. Opposite the toilet, on the starboard side, is a bathroom, containing a 4-foot enameled tub, a mirror and a comb and brush holder. Both these compartments are entered by sliding doors.

Occupying the after portion of the boat is a large deck, which will accommodate 10 to 12 people comfortably in wicker chairs. This deck is sunk 12 inches below the sheer and furnishes a very attractive lounging place. Underneath the deck the fresh water tank is installed. On the starboard side of the fresh water tank the space is given over to storage room for miscellaneous articles. This compartment is entered through a small door under the after steps or may be reached through a manhole in the center of the after deck.

A 62-Foot Cruiser for the New England Coast.

BELOW are given the profile and cabin plan of a 62-foot cruiser, designed by William J. Deed, Jr., of Boston, for a New York yachtsman. The boat will be used principally for cruising along the New England coast, and has been constructed with that purpose in view.

The dimensions of the cruiser are 62 feet length over all, 56 feet on the water line, 11 feet 9 inches beam, and 4 feet draft. There are provided accommodations for the owner and his guests under the trunk cabin, with galley, engine room and crew's quarters forward.

The owner's quarters are entered by a side companionway, opening from the trunk cabin upon the starboard side of the vessel. Opposite the companionway is the bathroom, which furnishes easy access

from all parts of the vessel occupied by the owner and guests. The galley is also arranged with the idea of making it easy of access and is located just forward of the saloon upon the starboard side of the vessel. Upon the port side opposite the galley is a refrigerator.

A 200-gallon gasoline tank is located under the after deck, which is flush, and another 150-gallon tank is located on each side of the motor room. The motor is a 150 h.p. Lalaco, and is placed under the bridge. This will drive the boat at a speed of about 10 knots. The headroom by the motor, along the space providing access to the galley from the fore-castle, is 5 feet 2 inches. There is full headroom throughout the rest of the boat.

The owner's room is 7 feet 6 inches long, the

bathroom 4 feet 1 inch, the saloon 10 feet 6 inches, and the galley 3 feet 3 inches.

Arrangements are made for heating by hot water, a point which will add much to the comfort of cruising in the early spring and late fall. The fresh water capacity is large and the refrigerator is of sufficient size to hold 500 pounds of ice so that cruises of considerable extent can be taken.

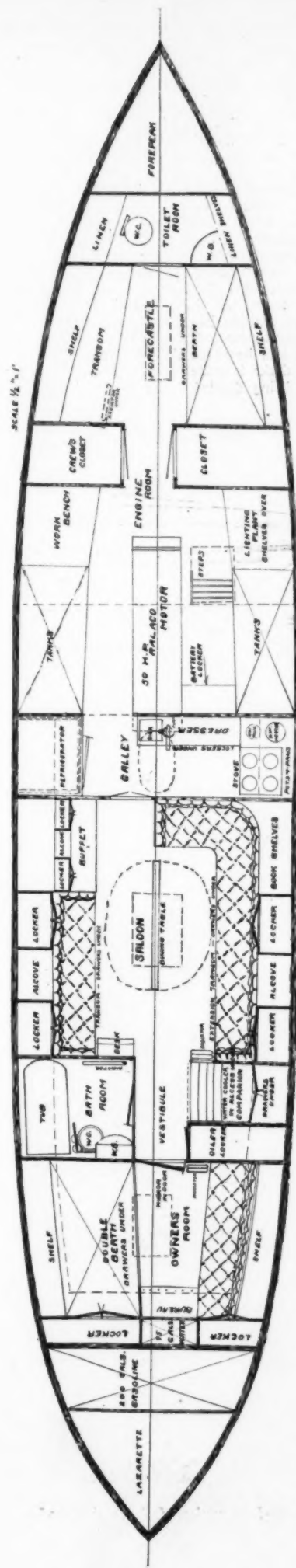
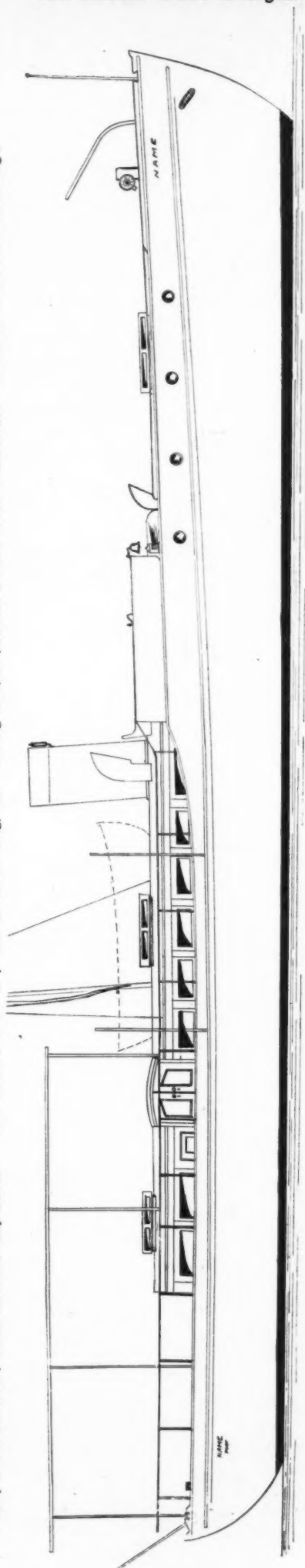
The construction of the craft throughout is extremely heavy and built for hard usage. The frames are 13 1/4 x 2 inches on 10-inch centers and on 5-inch centers under the motor. The planking is 1 3/8-inch hard pine finished.

The saloon is arranged as a real living room for the owner's family, and contains a large table, buffet, writing desk, etc., besides a water cooler in the recess

under the stairway. The finish of this room is golden brown, with upholstery and old gold hangings. The walls are finished with figured amber tapestry, with the stiles and rails and other woodwork in brown weathered oak. A dull tone to the room is obtained with a homelike mission effect. Plenty of open wall space is provided, upon which pictures are hung.

The trunk cabin aft of the stack is furnished with plenty of windows and two skylights for light and ventilation. Sufficient space is left by the trunk to leave fully half of the deck space available.

The owner's room is finished in white, with old blue upholstery and lighter blue hangings. A small amount of mahogany is used, sufficient to bring out the values in the other furnishings.



This craft, intended for New England coast cruising, is built for hard usage rather than speed. The living quarters are aft, and the motor and crew's quarters are located well forward.

A 43-Footer for the Gulf.

MORRIS M. WHITAKER, of New York City, has recently completed for Mr. D. G. Ross, of Tie Plant, Mississippi, for use on the Gulf of Mexico, the cruiser shown in the plans below. Good beam and arrangement were desired by the owner, and for this reason the vessel has a beam of 11 feet, although her total length is but 43 feet.

The construction is strong and rigid and the raised deck type of construction was used as presenting better lines for a boat of her size. The interior finish is in mahogany and white enamel throughout except for the engine room. As the boat is intended for offshore cruising her design is such as to give a great amount of seaworthiness and stability.

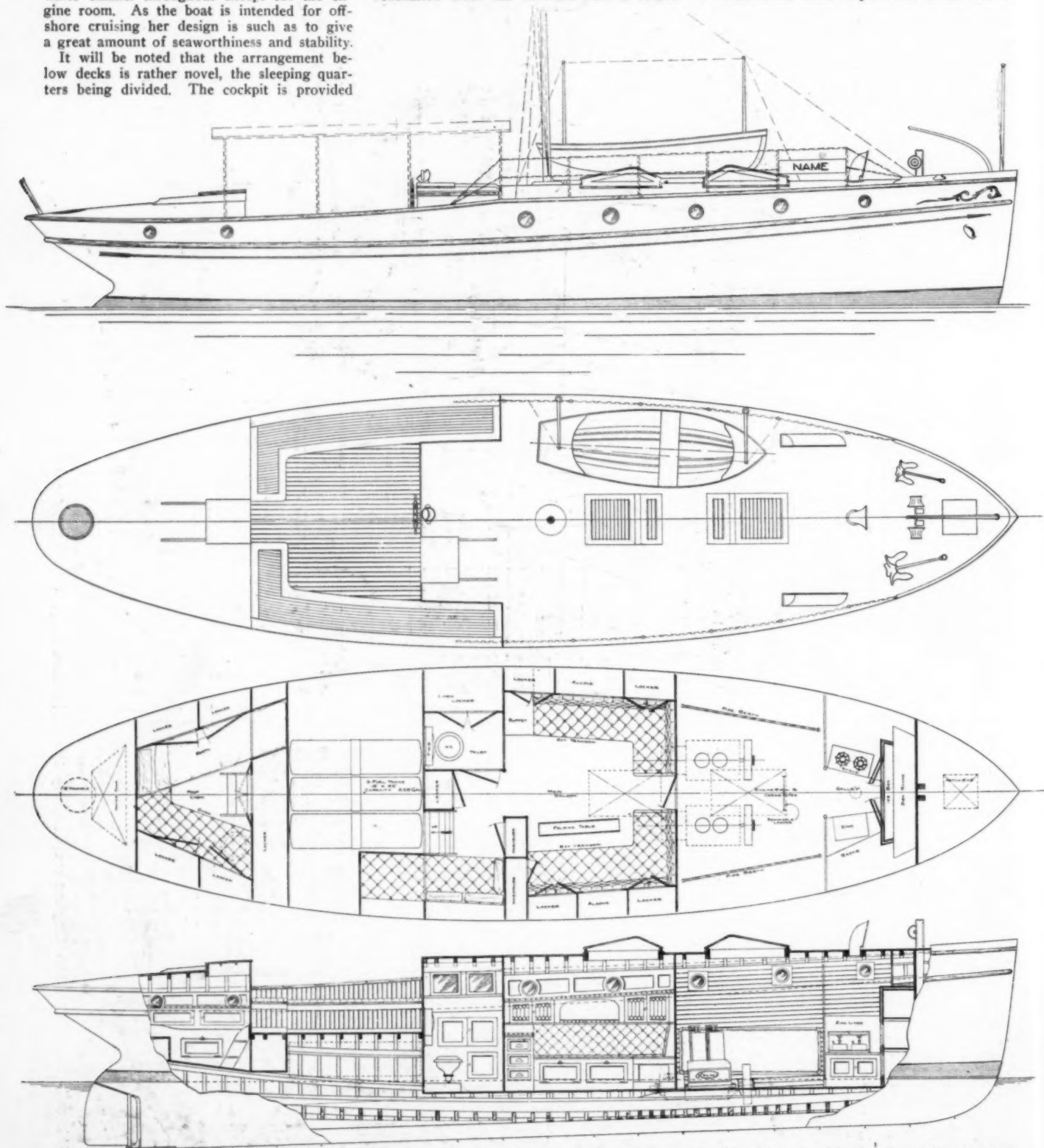
It will be noted that the arrangement below decks is rather novel, the sleeping quarters being divided. The cockpit is provided

just aft of amidships in which the main deck line is used for seats. The fuel is carried under the cockpit flooring sufficiently high to give a gravity flow to the motors.

The motors are located well forward in the vessel and the power plant consists of two 15 h. p. Ralaco engines. A pipe berth on either side of the motors provides sleeping accommodations for the crew. As may be seen from the plans, the skylights are arranged somewhat different from the ordinary method so as to secure the benefits from the down draft ventilation when the forward half is raised.

The front half of the forward skylight also raises up to a height sufficient to enable this to be used as a hatch for entrance to the engine room direct from the deck. These skylights are a new feature and have been manufactured by James McIntyre. They are known as the "McIntyre-Whitaker Combination Hatch, Ventilator and Skylight."

The fuel tanks have a capacity of 228 gallons each and there are three of them located under the cockpit flooring. A toilet opens off from the port side of the main saloon and a comfortable cabin is provided in the stern.



This 43-foot cruiser follows the modern steamship type and presents a somewhat novel scheme in the arrangement of the sleeping quarters.

MOTOR BOATING ABROAD.

Matz, a 64-Foot German Cruiser—Her Interesting Construction, Arrangement and Power Plant. The Two English Built Auxiliaries, Anemone IV and Sylvana, and Their Engines.

THE German seagoing motor yacht Matz was built by Oertz, for Herr Carl Hagen, of Berlin, who wanted a seagoing yacht of a practical design with plenty of cabin space, and all the deck space possible in an over-all length not to exceed 65 feet.

Recently completed, she has a displacement of 12¾ tons, and is 64 feet over-all, with 10 ft. 7 inches moulded beam, and 3 ft. 6 inches draft. The hull is planked on the double diagonal system, the outer skin being of oak, as is also the framework, except in the vicinity of the engine, where steel figures to some extent. Oak has also been used for the floors except in the engine room, where galvanized angle steel replaces it. This compartment is shut off fore and aft by water-tight steel bulkheads. Between these bulkheads are the steel fore and aft bearers, stiffened with floor plates and corner ironed.

The gunwale is of Oregon pine, strengthened along two-thirds of its length by steel knees, which support the beam ends. The deck beams are of oak and pitch pine, strengthened with steel and wooden knees. The capping and fish planks are of mahogany and oak.

Below decks the forecabin contains folding berths for the crew of three. Next aft is the well lighted and ventilated engine room under the forward trunk and accessible through a hatch to port of the helmsman's position. This bridge deck is protected both by the trunk and by a three-faced glass windshield, besides an awning when necessary. It is connected with the engine room by the usual telegraph system, the engine being reversed by means of a hand wheel in the engine room. The

engine is a 4 cylinder Daimler, rated at 70 h. p. at 650 r.p.m. The engine room also contains two gasoline tanks having a total capacity of

225 gallons, sufficient for a run of 500 miles.

The propeller shaft and stern tube are of bronze, as is also the massive propeller bracket and rudder. A special bronze has been employed for the propeller, which is a three-blade Zeise.

The owner's cabin is just aft of the engine room, and is equipped with two bunks, two wardrobes, the usual lockers, drawers, etc., and a lavatory. Aft of this cabin there is a lobby with companionway to the deck amidships. To starboard of this lobby there is a galley, and a toilet room occupies the corresponding space to port. The companion way is shown in the lower photograph.

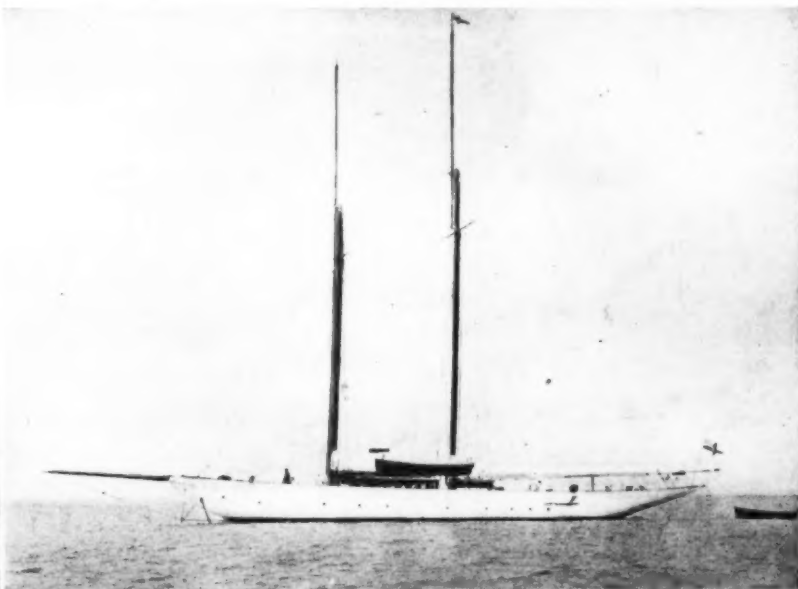
The remainder of the space beneath the cabin trunk is divided into two compartments, a ladies' cabin forward and a main saloon aft. These two rooms are connected by large double doors, so that they may be thrown into one if desired. A companion ladder leads to the after deck, and steps lead from this deck to the promenade deck, which occupies the entire roof of the cabin trunk.

Matz is lighted throughout by electricity, and maintains a speed of 10 knots. She has proved herself a thoroughly able craft on several runs in the North and Baltic Seas, and withal is an interesting and typically German cruiser.

At the bottom of the page are shown two English auxiliaries. The ketch rigged yacht to the left is Anemone IV, owned by Mr. C. D. Taylor, of Victoria, B. C. She was built several years ago at Gosport, England, at a cost of \$75,000, and was originally equipped with a 75 h. p. oil burning auxiliary steam plant, which has recently been replaced with a 125 h. p.



Consistent with German practice, Matz has her engine installed forward beneath a trunk.



Two British built auxiliaries—the 125-foot ketch, Anemone IV, and the 110-foot schooner, Sylvana.



At a recent wedding in Chester, England, motor boats were used to convey the bridal party to and from the church.

3-cylinder Union gasoline engine, built by the Union Gas Engine Co., of San Francisco. The power tender is also to be fitted with a 7 h. p. Union, and the acetylene lighting plant will be taken out and a 6 h. p. gasoline engine and dynamo set installed in its place. This will be used in connection with an elaborate system of storage batteries.

Anemone IV is one of the finest yachts on the Pacific coast, and only teak, oak and mahogany were used in her construction. She is 125 feet over all, with a registered tonnage of 118 and her log shows two trips around the world, a second prize in the San Pedro-Hono-

lulu race, and a cruise in Alaskan waters just completed. In his choice of a power plant, Mr. Taylor has paid a great compliment to its American builders.

The schooner rigged auxiliary to the right is the new *Sylvana* owned by Col. Courtney Morgan, of the British Royal Yacht Squadron. She is equipped with an auxiliary Thornycroft motor of 47 brake h. p., and during her first few months in commission she has fully justified the expectations of her owner both under power and sail.

Sylvana is 110 feet over-all, 90 feet on the water line, 23 feet 4 inches beam, and 252

tons Thames measurement. She was designed and built by Camper & Nicholson, of Gosport, England. Her 47 h. p. 4-cylinder oil-burning motor was installed by Thornycroft, is equipped with a reverse gear and turns at 350 r. p. m.

In England *Sylvana* is generally credited with having touched the high-water mark in schooner yacht design, her racing qualities being of the best, while capable of making a cruise round the world. Under motor power alone a speed of 5 knots is maintained, while with reverse she can be brought up to a dead stop in a very short distance.

How Lürssen-Daimler Was Evolved

THE hull of Lürssen-Daimler, the German racer of Monaco fame, was evolved by a series of experiments with models,

and the photograph shows how these were towed to determine their resistances. The models were three feet in length, and of various types of hydroplane and displacement boats, and as shown in photograph, were towed from the ends of a yoke which was carried on the bow of a fast motor boat, and the arms of which were long enough to hold the models clear of the bow wave of the latter.

The model on the left of the picture is of the displacement type, and that on the right a stepless hydroplane of the scow type.

Lürssen-Daimler is the most famous speed boat ever "made in Germany," having won the "Championship of the sea" at Monaco this spring. Out of the fifty-six starters, La Quise and Pik-As VII were the only other boats to finish the race. The distance was thirty-two rounds of the

course, or about 124 land miles, and the average speed made by Lürssen-Daimler was 22.6 knots.

It will be remembered that Lürssen-Daimler's hull was a stepless hydroplane with a practically flat bottom, which was extended

aft of the transom to a fine edge at the water line. The hull was not notably original in any respect however, and her success is attributed by many to her motor which had been previously used in a racing automobile and which, although heavy, faithfully delivered her rated horse power without a falter. The motor was one of the finest jobs seen at Monaco. It is wonderfully well designed and is of moderately long stroke, the bore being 123 mm. and the stroke 200 mm. (about 8 inches).

In a number of the later German boats, notably Daimler I, Daimler II, Pik-As VII, the flat under body has been employed, and while appreciating the necessity of planning for the higher speeds, the Germans, as far as we know, have done nothing toward the development of a hydroplane of the single or multiple step variety.



The model on the left is of the displacement type and that on the right is a hydroplane.

A Crude Oil Motor Yacht.

Gentzrode III, a 57-Foot German Cruiser, Which Shows the Influence of American Design. Her Crude Oil Burning Motor Using the Hot Bulb Method of Ignition.

GENTZRODE III is a 57-footer. She was designed for river, lake and coastal cruising by Hermann Müller, and was recently completed at Potsdam. Her designer, although one of the youngest of the German naval architects, has already a number of successful boats to his credit; but the new cruiser is by far the most pretentious of his designs.

The most interesting feature of the new craft is that, instead of the usual gasoline or perhaps kerosene power plant, with the customary electrical ignition system, she is fitted with a motor, using crude oil as fuel, and the hot bulb method of ignition. This motor is a two-cylinder Bollinders, developing 24 h.p. at 450 r.p.m. It is of the two-cycle type, and reversible, and the hot bulb arrangements with the blow torches for heating to the point of incandescence are plainly shown at the bottom of the page.

Gentzrode III is 57 ft. over-all by 11 ft. beam, and 3 ft. 6 in. draft, and her displacement is 14½ tons. As is the case with many of the recently built German cruisers, she is constructed almost entirely of steel, the skin being 3/16 in. in thickness. The cabin trunk and the decks are of wood.

In design the new boat approaches more nearly the American practice than any we have thus far seen. It will be noticed that she has the American raised deck forward, extending to the steersman's cockpit (somewhat farther aft than the raised sides), in the form of a trunk—a distinctly American feature.

Were it not for the position of the stack and signal mast, which to our eyes appear

rather misplaced, the boat would resemble even more the American cruiser, for she has the steering bridge between the raised deck and the cabin trunk, which is becoming so popular on this side of the Atlantic. This bridge or cockpit, as it should be called, is sunk a few inches below the level of the main deck and is protected by a wooden screen for-

above it. The space of low headroom beneath the steersman's bridge is occupied by the two oil tanks. The engine room connects with the steersman's bridge by means of a ladder and a companion hatch, but is separated from the quarters aft by another steel bulkhead.

Occupying the forward end of the trunk cabin is a large full-width stateroom with a large berth on either side.

This is called the ladies' cabin. What is called the men's cabin and main saloon occupies the after end and between these two compartments are the toilet room to port and a galley to starboard—sort of an insulation. There is another steel bulkhead aft of the cabin separating it from the storage space beneath the after deck. The boat is lighted by electricity supplied by a dynamo driven by the engine.

The only harsh note in the design is the stack and signal mast stuck up close together on the raised deck forward, but as far as the stack is concerned, it was necessary to place it here for the ventilation of the engine compartment. Her signal mast is so arranged as to swing down when passing under bridges.

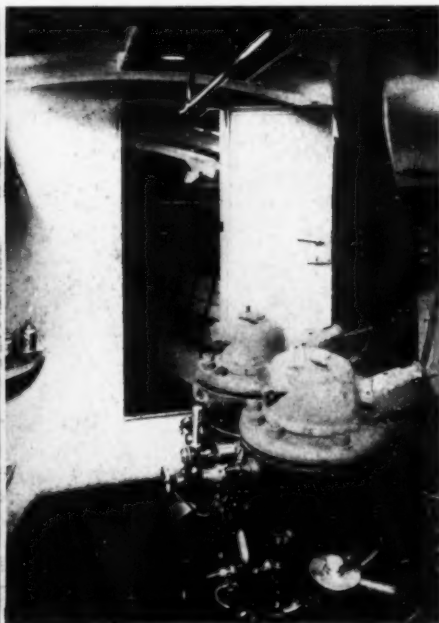
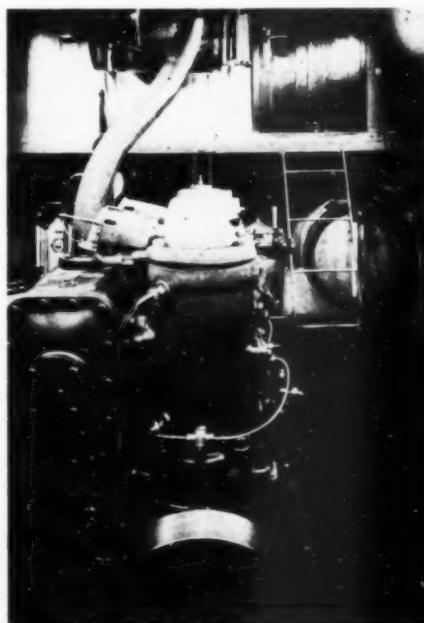
Gentzrode is an able looking craft—the Germans have not yet come to the point where they are willing to sacrifice seaworthiness for less important qualities. She has the canoe type of bow and stern and her underbody shows plenty of deadrise. She is lighted throughout by electricity supplied by a dynamo driven from the engine. A tender is carried in chocks on the roof of the cabin trunk.



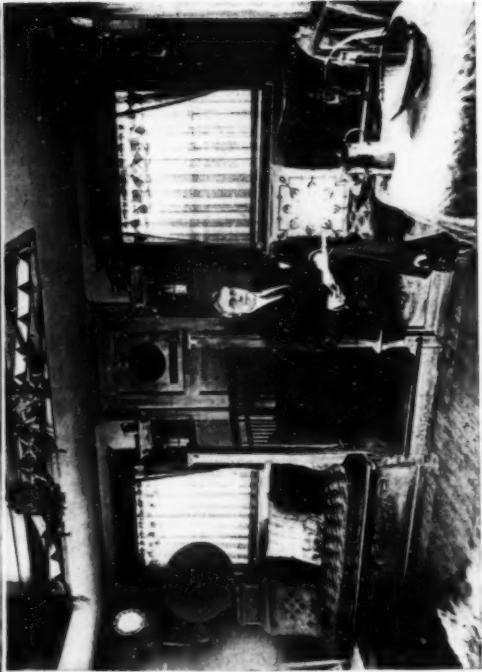
Gentzrode III has the raised deck—trunk cabin forward, a distinctly American feature.

ward and at the sides, and an awning above. It connects with the flush deck aft of the cabin trunk by a runway at either side of the latter. This trunk is light and airy, but to obtain ample headroom, it was made too high above the main deck to be used as a seat. The bow and stern are of the canoe type.

A glance at the lower right-hand photograph shows the forecabin forward of the engine room, and separated from it by a steel bulkhead. The latter compartment is well lighted and ventilated, the exhaust from the engine being carried up through the stack



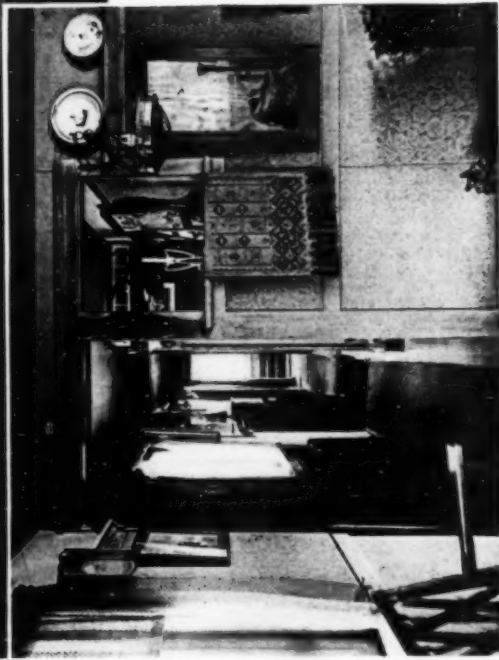
The after part of the main saloon and two views of the engine room showing the crude oil engine and its hot bulb ignition system.



Driftwood, an Original 75-Foot Houseboat.

Length over all	75 ft.
Beam	16 ft. 5 in.
Length of house	50 ft.
Draft	18 in.
Speed	5 miles per hour

Motive power—a 30 h. p. Packard automobile driving stern wheels through sprockets and chains.



Driftwood--A Unique Houseboat.

A 75-Foot Stern Wheeler That is Propelled by Her Owner's Automobile. An Innovation in the Houseboat Line That Has Proved Thoroughly Practical.

DRIFTWOOD is her name, and she is a houseboat, but a most exceptional houseboat, as you will see. She hails from Chicago, and is owned by Mr. Edwin F. Brown of that city. The very unique and altogether original feature of the boat is the manner in which she is propelled, for her power plant, and you'd never guess it in the world, is an automobile that is used by the owner to go to and from his business, and when on board, is connected up by a couple of chains to the shaft, carrying the two stern wheels.

As is shown in the photograph, Driftwood is an extremely trim looking craft, with a finish and arrangement unique in this type. Her hull is a scow, 75 feet in length, upon which is erected a house about 50 feet long by the full width of the boat, which is about 18 feet. The entire roof of this house is available for deck space and is built out to nearly the entire length of the boat, protecting the forward and after decks below.

The interior is laid out as comfortably as the average apartment on shore. The forward room, which is entered by descending a few steps back of the locker, shown on the forward deck, is the living room, and is shown to the right on the opposite page. It is lighted by two large windows at the sides and two forward, besides a skylight above, and is a cheerful place to spend the time when the weather will not permit the use of the upper deck. A long passage on the starboard side of the boat extends the entire length, and opening off from it are the owner's stateroom, a bathroom, a guest stateroom, and a galley or kitchenette, with a steward's

room opening off the latter.

A gang plank extends from the stern of the boat and the automobile is run onto the boat by means of this bridge, and is held in place in tracks shown in the illustration on this page. All that is required to connect up the power plant are two chains, as the hub of

do much to calm the nervousness induced by our city life. It is about time that Chicago came into her own in this respect, as she has miles and miles of water front and rivers.

"There 57 miles of Calumet River and over 12 miles of the Evanston Canal which can be used for houseboat moorings, and when the

outer drives are built along the Lake front, there will be miles of quiet water inside, also available for houseboats. It is cheaper to build houseboats than it is to buy the land on which to build houses, and then there is the great advantage of being able to pull out when tired of your surroundings."

A high speed power boat is the third unit of this residential flotilla, and Mr. Brown and his houseboat guests will be able to cruise on either water or land, always having at hand a steam heated, five room apartment, with hot and cold water, refrigerator, gas stove, roof garden, sun parlor, private back porch, hard wood floors, laundry, clothes dryer, and janitor service. About the only modern improvement Driftwood hasn't got, is the telephone, but to make up for the deficiency she is supplied with a piano player, phonograph, and a horn.

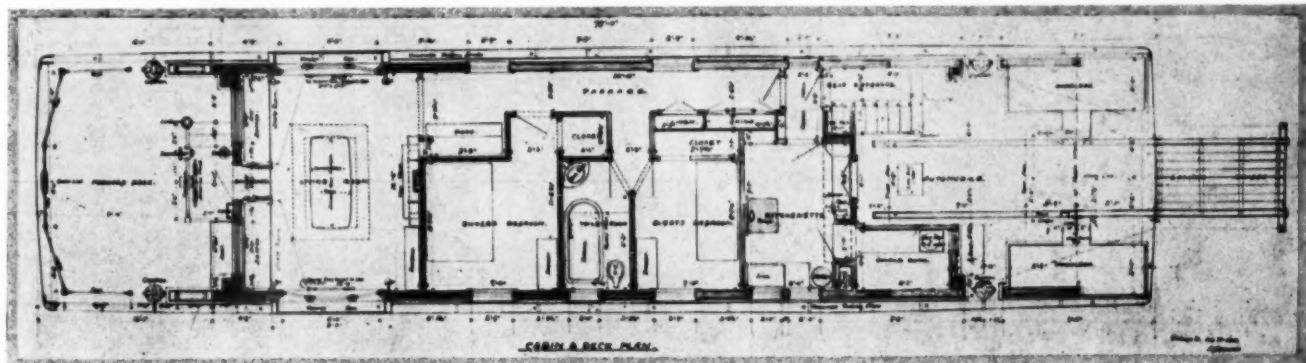
An interesting feature of the boat is the awning on the upper deck. This is so arranged that it may be folded flat on the roof when necessary to pass under bridges. Another interesting feature is the consistency with which the finish and decoration have been carried out. The finish of the woodwork and the color scheme throughout suggest weather-beaten driftwood, and considering the boat's name, the idea is doubly pleasing.



The automobile is run onto the after deck, over a gang plank, and is coupled up with a shaft by chains.

either hind wheel of the car is provided with a sprocket wheel, which lines up with a larger wheel on the shaft. One of these may be seen in the illustration.

Mr. Brown is enthusiastic over his houseboat, and his enthusiasm is founded on an investigation of several years. He says, "After looking into the matter, I decided to try this experiment, and have lived on the boat long enough to feel assured of its success. I am convinced that sleeping on a houseboat will



The accommodations offered by Driftwood are equal to those of the usual city apartment.

More Power Without Added Cost

The Marked Advantage of Using Two Simultaneous Sparks for Each "Explosion." How to Wire the Ignition System to Obtain Greater Motor Output.

By P. S. Tice.

AN ignition system's efficiency is measured by its ability to ignite the cylinder charges without fail, under a widely varying set of carburetion conditions, so that they burn with the greatest rapidity, and with the expenditure of a minimum of electrical energy. The condition of greatest electrical efficiency will not be dealt with in this article, attention being devoted instead to those things which make for the greatest ignition efficiency

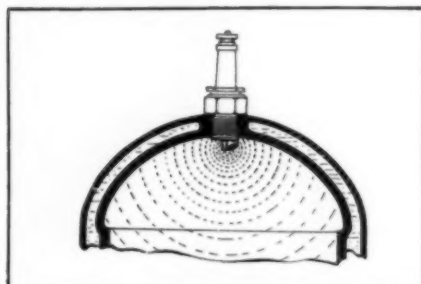


Figure 1.—The shape assumed by the flame cap.

referred to power development and thermal efficiency in the engine.

For the sake of completeness, the often repeated and now generally recognized fact that charge combustion within the cylinders of an internal combustion engine is not instantaneous, and requires an appreciable time for its completion, will be presented at the outset. This seems, in itself, to be a rather unimportant matter and one which need not influence ignition to any great extent. Nevertheless, the contrary is true, and it is because of the above fact that it is possible to experience variations in this efficiency even though each charge be ignited and the engine continue to run without skipping.

First of all, the matter of carburetion and its influence on the action will be briefly disposed of. Mixtures of fuel vapor and air will burn at various rates, measured in the travel of the flame cap through them, depending upon

the proportions of the active constituents present. These rates of combustion vary under the influence of mixture proportions all the way from zero to about 40 feet per second. However, it is always sought in an engine to have a mixture which will burn at the maximum rate. The several reasons which make it desirable that the mixture burn with the utmost rapidity will be commented upon a little later. Since compression pressure also largely influences the rate of combustion, causing it to increase as the pressure increases, it is seen that there are two very important elements outside of the ignition itself which greatly influence the efficiency of the ignition. This being the case, it becomes necessary to assume that a given set of carburetion conditions obtains throughout, the only variations considered being those which are inherent in the ignition system. Therefore, in the following, it will be taken that the mixture is in all cases such that combustion can take place at its maximum rate, under a compression pressure which is the mean of the several values found in practice.

HOW A CHARGE BURNS.

WHEN a charge of mixture has been compressed in an engine cylinder, and the spark caused to pass across the plug points, that portion of the charge, immediately surrounding the plug points, relatively an extremely small part of the total charge, receives sufficient heat from the spark to raise its temperature to such a point that a flame is created and combustion started. Just here, it should be stated that ignition and combustion are, respectively, in the positions of cause and effect, and are in no sense synonymous.

The small, initial flame created in the mixture by the passage of the ignition spark heats the unignited mixture immediately surrounding it, and also through expansion, due to its sudden increase in temperature, increases the compression of the immediately surrounding mixture, thereby further tending to raise the temperature. These two heating agencies together propagate the flame throughout the remainder of the mixture, each layer, so to

speak, of infinitesimal thickness, being heated to the temperature of combustion by the heat of and compression due to the combustion of the preceding layer. Since combustion is started between the ignition points of the spark plugs, and these latter are surrounded by combustible mixture, the flame cap propagates itself through the charge equally in all directions from the point of initial combustion, provided the mixture is homogeneous.

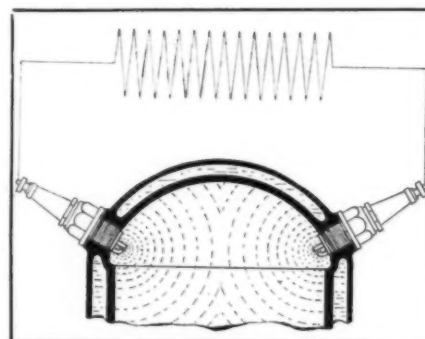


Figure 3.—Combustion started from two points.

The propagated flame cap assumes the form of a sphere, as far as it is possible for it to do so, as shown in Fig. 1. Very naturally, as the combustion progresses, the mean temperature and pressure of the charge increase, and this accelerates the rate of combustion or travel of the flame cap, as per the above. Each layer of gas, considered as infinitesimal thickness, is compressed individually to a higher pressure than that existent in the layers beyond it, because of the suddenness of the heating and expansion of the burning and burned layers acting to compress it against the inertia of the unburned portions of the charge. That is to say, during combustion of the charge the temperatures and pressures existent throughout the cylinder volume are not equal and the flame of combustion in each

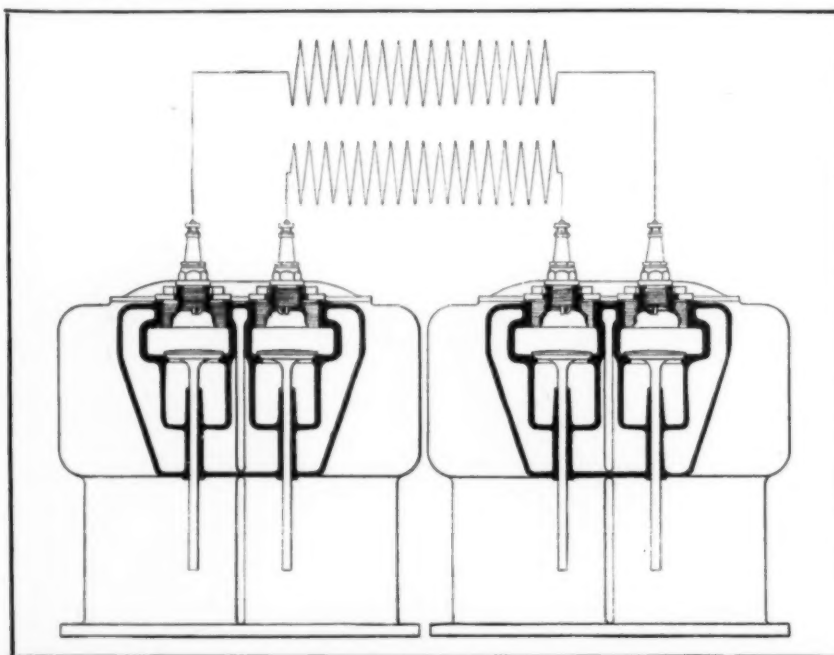


Figure 2.—The method of firing four cylinders with two coils.

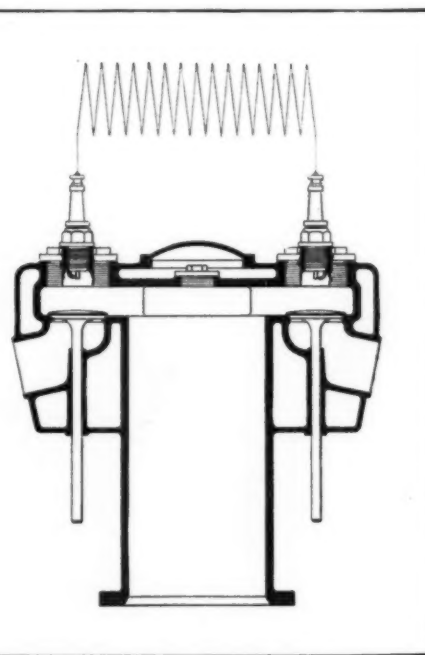


Figure 4.—Wired for simultaneous sparks.

layer is necessary for the proper heating and compression of each succeeding layer.

COOLING THE FLAME.

JUST as the combustion of each gas layer adds to the temperature of the succeeding layers, by compression and conduction, so do the cylinder walls act to cool the gas and retard the propagation of the flame by conducting away a considerable part of the heat as fast as it is liberated by the burning. In extreme cases it is possible to conduct the heat of the flame away so rapidly that combustion ceases. In experiments run with a view to measuring the rates of flame propagation, employing long glass tubes, the flame cap invariably takes a conoidal form in which the center of the curve coincides with the axis of the tube and is much farther advanced than that part of the flame cap nearer or at the wall of the tube. This is because the walls of the tube conduct the heat away and therefore retard the combustion through a literal cooling of the flame. In Fig. 1, the circular curves should be bent back to show a lag in the combustion rate where they come in contact with the walls, because of the above wall cooling effect. From the above it appears that to secure the most rapid combustion it is necessary that the walls of the cylinder be at the highest possible temperature, to reduce the wall cooling effect on the charge. This cooling of the flame and consequent retardation of the combustion, in many cases causing its elimination, is frequently demonstrated when it is attempted to start a cold engine on a cold morning. Several very weak impulses, of insufficient strength to overcome the resistance of the next compression, and causing but a slight puff in the exhaust muffler and piping, will almost always be obtained before the engine starts. In extreme cases it is possible to obtain as many as a dozen or more of these weak combustions before the cylinder walls are sufficiently warmed to allow of a rapid enough combustion of the charge to start the engine. Of course, some of this weakness in the initially obtained impulses is attributable to the poorness of the mixture obtained under these conditions of temperature, but even so it provides a very good illustration of the wall cooling effect on the burning of the charges.

Under the above outlined conditions of combustion, it naturally follows that the size or amount of the initial burning is of great importance, as effecting the speed with which the burning will be completed. This is true in view of the acceleration of the burning which occurs as the combustion progresses. As a matter of fact, the rate of travel of the flame cap through the mixture will be very nearly uniformly accelerated. From this it appears that, if complete combustion takes place through a given space in a given time, the flame having been started by the ignition of a given quantity of the cylinder charge, the initial combustion at the spark points of twice this quantity of charge will result in the complete combustion of the same charge volume in the same cylinder in but .7 of the above time. This is because the temperature and pressure induced by the initial combustion of twice the quantity of mixture liberates twice the amount of heat and at the same time doubles the pressure. When this condition obtains, the rate of travel of the flame through the same space or cylinder volume will be, in the latter case, compared with the former, as one is to the reciprocal of the square root of two or as 1: .7.

It will generally be found impracticable to start the combustion by the initial ignition of twice the quantity of mixture in one case as compared with another, in the same cylinder and with a change in the size and quality of the spark alone; but, nevertheless, the above example indicates the possibilities, and shows how it is that, though the engine may not have been missing, an increase in battery strength or an improved vibrator setting, to increase the spark volume, can account for the very much improved power delivery and flexibility of an engine.

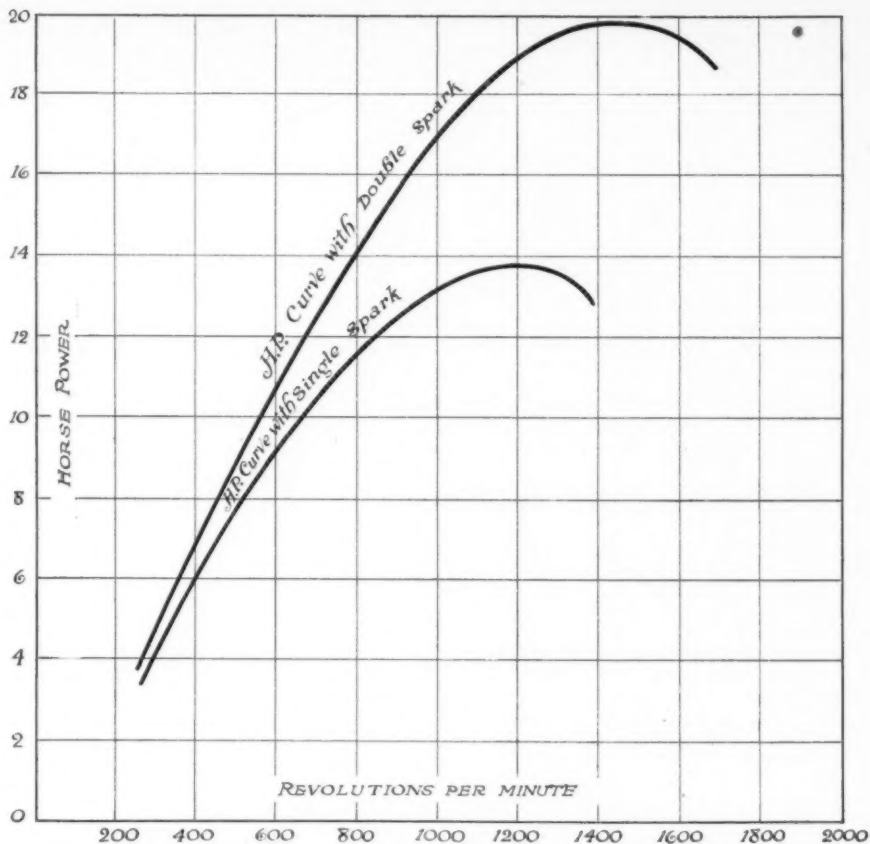


Figure 5.—Typical curves showing the horse power with single and simultaneous double sparks. Note the increase in r. p. m. made possible by the double spark.

"FAT" AND "LEAN" SPARKS.

THIS brings us directly to a consideration of the popularly termed "fat" and "lean" sparks. It is rather difficult to tell where the one classification ends and the other begins, since a properly classed "lean" spark will in an engine with a properly shaped combustion chamber prove as effective as will a properly "fat" spark in another engine in which the combustion chambers have not so advantageous a form. Naturally, a "fat" spark, one of considerable volume, will induce a more rapid burning of the charge than will a "lean" spark in the same engine; but it is possible, and occurs many times in practice, that the combustion due to a "fat" spark will be so dampened by wall cooling as to cause no acceleration of the combustion rate as compared with the effect produced by a so-called "lean" spark in a combustion chamber in which the wall cooling effect is not so pronounced.

The "fatness" of a spark, with a given induced electrical pressure in the secondary of a transformer coil, may be taken roughly as inversely as its length. "Fatness" and "leanness" have nothing to do with the measured temperature of a spark, but they do control the amount of heat that the spark is capable of giving out at any one point along its length. That is to say, the temperature of the long, "lean" spark and the short, "fat" one, as obtained with the same coil and current consumption, will be approximately equal; but the short, "fat" spark will be capable of the greater heating effect, locally speaking. This is true in the same sense that a blow pipe can be made to give a long, thin flame of a given temperature and a shorter, thicker one of the same temperature, but the shorter flame will be capable of melting a given quantity of metal in much less time than will the long flame, since the total heat of the flame is more concentrated or localized and the cooling effects of the external air and surrounding bodies, as well as radiation, are minimized. For these reasons a relatively short, thick spark has a greater heating effect on that portion of the mixture through which it passes than has a longer, thinner spark, and therefore is capable of creating an initial combustion, which is

more powerful and energetic than can one which is more "lean."

"FATTENING" THE SPARK.

THIS fact has been discovered and taken advantage of in rather a pronounced manner by the makers of two-cylinder opposed engines. When these engines first came into prominence, it was usual to fit them with but a single coil, the two ends of the secondary being both brought out and insulated, and connected one to each of the spark plugs. This method of wiring caused the occurrence of a spark in each cylinder upon each closure of the circuit through the timer. The placing of the cranks at 180° in these engines made this permissible, since one of the sparks, (they being in series with the coil secondary), occurred at the end of the compression stroke for the firing of the charge, the other, occurring simultaneously, passed its gap at the end of the exhaust stroke, in the cycle of operations of the other cylinder, and vice versa.

While this system possessed the advantage of simplicity, it also possessed several disadvantages which much more than outweighed the former. Chief among the disadvantages was the fact that each induced wave of electrical pressure was forced to bridge two gaps, thus making each of the total spark lengths twice that actually necessary. This resulted in an attenuation of the spark, otherwise known as "leanness," with the faults noted above. It was some time before makers realized this fault, and in each case in which a change was made to double coils with single spark gap per cylinder, gains in power and flexibility of from 10 to 20 per cent were at once experienced. These gains were entirely attributable to the higher thermal efficiency of the engine, due to the increased rate of combustion attendant upon the use of "fatter" sparks for the inflammation of the charges.

Latterly, it has been attempted to fire the charges of four cylinder engines in this same way, using but two coils for the four cylinders, and wiring the secondaries so that the plugs of the first and fourth and those of the second and third cylinders were in series with each other and one of the windings, respectively. Besides the difficulty with slow com-

bustion, mentioned above, others developed when this system was applied to four-cylinder engines, and these have led to its abandonment in the majority of those cases in which it was originally fitted. In Fig. 2, a four-cylinder engine is shown wired in this way. This diagram also makes clear the application of the single coil system as applied to double cylinder opposed engines, the cylinders of which correspond to either pair of cylinders wired in series in Fig. 2.

Knowing the conditions under which combustion takes place in an engine cylinder, and starting with the premise that it is desirable to have the combustion completed within the shortest possible time after the occurrence of the ignition spark, several of the possible ways for accelerating the travel of the flame cap will be considered.

HASTENING THE COMBUSTION.

WE have seen that heat and pressure are necessary for rapid combustion. However, there are practical limitations in the way of extending either the temperature of the charge as a whole or increasing the compression pressure beyond certain well defined limits, no matter how greatly the rate of combustion might be accelerated thereby. The initial charge temperature limit is set by considerations of maximum charge weight aspiration, since all gases expand rapidly when heated; and the compression pressure is limited by considerations of smooth running and flexibility at low speeds under load, as well as by the ever present danger of preignition if compression is carried beyond a quite low limit. In this connection, it should be stated that in present practice, the compression pressure is kept well within the limit at which preignition is apt to occur.

Since these two ways are practically closed as means for accelerating combustion, there is but one other left which is at all of practical value, i. e., modifications of the igniting apparatus. As shown in the above, a large, "fat" spark will induce a more rapid burning than will a "leaner" one; but there is nothing of practical value to be gained through ignition system changes which include the production of extremely large sparks, since the insulation difficulties and current consumption increase very rapidly with increases in the size of the transformer coil or coils. In the foregoing statements it is assumed that ignition sparks are produced through a battery and coil system.

COMBUSTION AND THERMAL EFFICIENCY.

IT stands to reason that the more rapidly the heat energy of the fuel in the mixture is liberated, the greater will be the pressure due to the combustion and the more rapidly will it attain its maximum value. It is also a thermodynamic truth that the more rapidly the cylinder contents are raised in temperature, the less will be the heat losses and the more nearly will the entire heat energy of the fuel be converted into useful work. In short, the thermal efficiency of the engine will experience an increase with increased rates of charge combustion.

In work with the indicator, it has been found that the power and thermal efficiency of an engine are greatest when the so-called "explosion line" of the indicator card or diagram is most nearly vertical. In this connection, it should be pointed out that no difficulty is experienced in obtaining this vertical combustion line, representing a rise to maximum pressure before the piston has started on its out stroke, with ordinary, single spark ignition in the average engine, so long as the piston speed is within a certain rather low limit. However, as the piston speed is increased it is found, in the average case, that the combustion line ceases to be vertical, first becoming rounded at its upper end where the gas starts to expand on the power stroke, due to the speed of the piston being greater than the rate of travel of the flame through the mixture. This effect goes on increasing, with a consequent flattening of the card and loss of power and thermal efficiency, as the engine speed increases, until gas losses through the passages, also due to the increase in speed, so reduce the compression pressure and consequently the pressure upon combustion that a further increase in engine speed is impossible. If the rate of combustion can be increased, the piston speed at which power and thermal losses, due to the above limitations of charge combustion rate, occur will be raised, and the flexibility of the engine will experience an extension in the upper ranges of speed and power development.

A comparison of Figs. 1 and 3 will indicate how it is possible to accelerate the rate of charge combustion through the use of two simultaneously occurring sparks per ignition. Assuming the two sparks at the plugs in Fig. 3 to be equal in volume and igniting power, compared with the single spark in Fig. 1, and bearing in mind the above on the manner in which the flame propagates itself from the region of the plug points throughout the re-

mainder of the charge, it will be seen that complete combustion must occur within at least half the time in Fig. 3 as in Fig. 1. As a matter of fact, the rate, with equal spark volumes in the two cases, will be somewhat more than twice as great, since the compression of the gas, due to its combustion in the presence of which the combustion takes place, will be higher with the two sparks.

HOW TO WIRE THE PLUGS.

HOWEVER, it is absolutely necessary that the two sparks occur simultaneously if the above noted acceleration is to be realized. This necessitates in turn that the two spark plugs be connected in series with the secondary winding of either the coil or magneto, as shown in Fig. 3, since it is physically impossible to have two separate sources of electrical pressure, as two coils, connected one to each of the plugs, and at the same time have the required absolute coincidences of the sparks. This being the case, it will be found inexpedient to have coil units of sufficient size to secure the same volume of spark at each of the two plug gaps in Fig. 3 as in Fig. 1, where one gap only is presented, because of the difficulties of insulation and increased current consumption, as noted above.

This brings us to a consideration of what the actual rates will be in the two cases. It is impossible to arrive at more than approximate figures by other than empirical means, but the tendency can be clearly shown by simple arithmetic: In Fig. 3 we have sparks of the same value as those noted for the four-cylinder engine employing two coils, Fig. 2, or the double cylinder opposed engine with but a single coil. In the foregoing it has been shown roughly that the rate of combustion due to one of the double sparks is to the rate induced by a spark involving the same energy but of half the length as .7:1. Taking the rate as 1 with Fig. 1, since the rate with two sparks is approximately twice that with but one spark, and the sparks in Fig. 3 have .7 the value as combustion rate producers as that in Fig. 1, it follows that the rate at which combustion will be completed in Fig. 3 is $.7 \times 2$ or 1.4:1, compared with Fig. 1.

The advantage of the double spark system has been realized for some time in the automobile field, and some of the manufacturers have placed upon the market magnetos especially designed for this system. These are used to some extent on motor boat engines as well, but there is room for a much more extensive application of the system in the marine field.



The bleachers.

Various Boats for Various Uses.

The Police Patrol Boats of the Charles River, a New Motor Cruiser for Carnegie Institute, And the New 45-footer Margo, a Trim Motor Cruiser of the Ilys Type.

THE State of Massachusetts has in commission three motor patrol boats, on the Charles River Basin within the city limits of Boston. These boats are controlled by the metropolitan park commission and are designated as Nos. 1, 2 and 3, and they are to figure largely in the activities of the river where 500 motorboats are used during the summer season.

The boats were designed by Arthur Binney and built by Lawley, late last year. Until this spring they had not been tuned up and their performance was only a matter of conjecture. No. 1 is 36 feet long and is equipped with a 16 h. p. Standard motor which develops a speed of about nine miles an hour. Nos. 2 and 3, 25 feet long, are really runabouts, their 25 h.p. automobile Standard motors driving them 12 miles, which speed is sufficient to keep the officers in touch with violators of the park regulations. The boats will be used also in patrolling regatta courses when Harvard and other colleges meet on the basin.

Each boat carries two patrolmen, and No. 1, which has a standing top with glass windows, is for night work and for service during late fall and early spring. The equipment includes a hot water heating system for comfort of occupants during disagreeable weather. When No. 1 is in the boathouse, in cold weather, the heater will be connected with a steam pipe to prevent water in the jackets of the motor freezing.

Nos. 2 and 3, with auto tops, have motors installed under a hinged hood a trifle forward of amidships and the operator occupies a cross

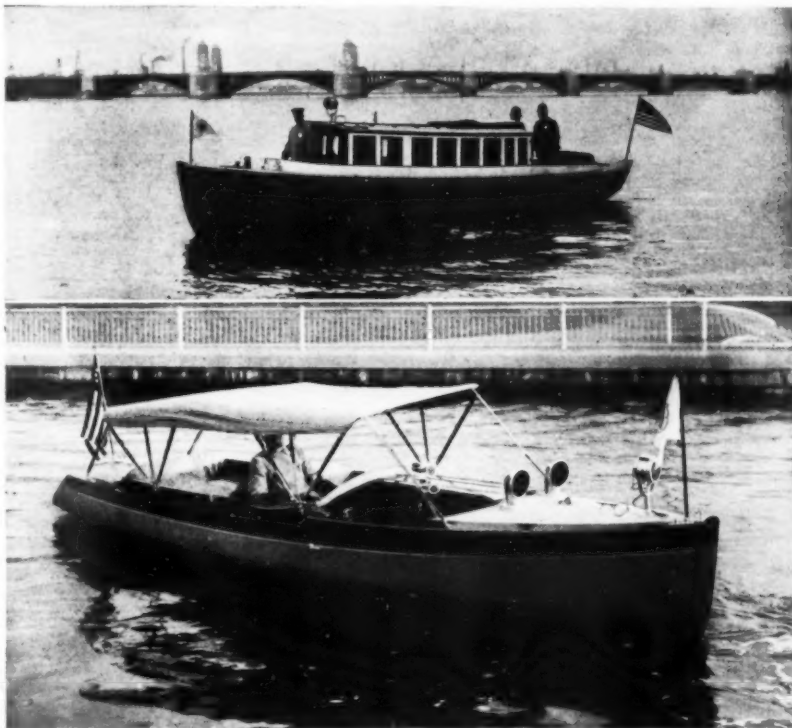
seat under which is the fuel tank of 30 gallons capacity, all controls being on the bulkhead. The acetylene searchlight, operated by the helmsman, is actuated by a device thought out by Mr. Binney. In fact, the designer's

the boats are called on to perform ambulance service. Each boat is supplied with medicines and appliances for first aid treatment in case of accident. Life preservers, fire extinguishers and grappling irons are stowed aboard for emergency assistance to luckless or unfortunate boating parties.

The thirty thousand dollar raised deck cruiser shown at the bottom of the page was built for the Carnegie Institute and will be used in connection with the Biological research work of that institution. Built and recently launched by the Miami Yacht & Machine Co., of Miami, Florida, the boat is interesting in a number of respects. She is 70 feet over all, with 16 feet beam and 5 feet draft, and the keynote of her design and construction is staunchness and the ability to stand the very roughest green water.

It will be seen in the illustration that there are raised decks both forward and aft and a bridge deck somewhat forward of amidships, a unique arrangement and not just like anything we have seen thus far. The construction throughout is most substantial, the frames are 6 inches wide, spaced 14 inches on centers and of selected Madera, found on the Florida Keys. The keel is of Georgia pine, as is the planking, which is 1 3/4 inches in thickness.

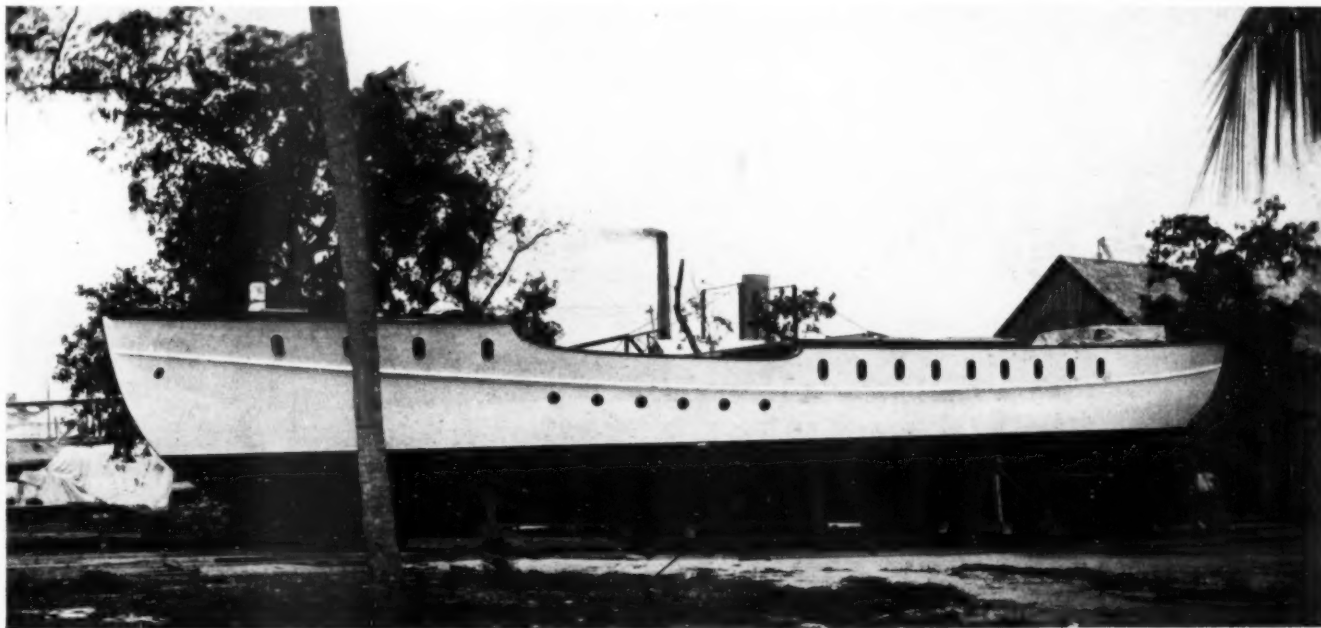
The power is supplied by two 50 h. p. heavy duty marine motors of the 4-cycle type, and it will be seen that the screws are so located as to be thoroughly protected from injury in case of running aground.



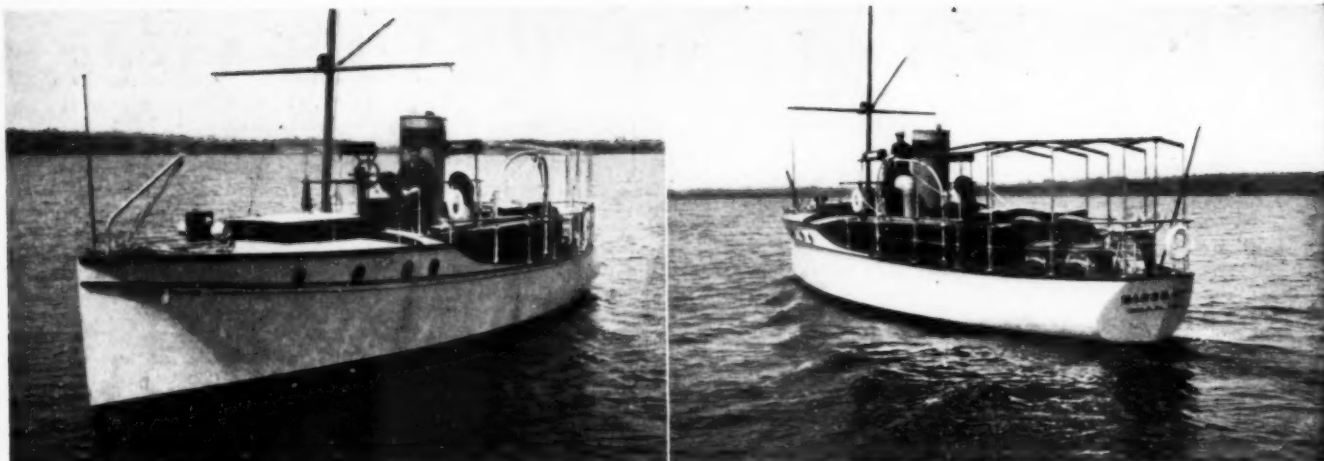
Metropolitan Park Commission Patrol Boats No. 1 and No. 3, used on the Charles River.

clever ideas are in evidence in many places on the three boats in a number of novel kinks and wrinkles. An electric horn of the Sireno type and two cowl ventilators are installed on the forward deck and provision has been made for hoisting the boats on davits.

The cockpits of No. 2 and 3 are long enough to stretch a person on the floor in case



The staunch 70-footer Anton Dohrn, a motor cruiser to be used for biological research work among the West Indies.



Margo, a 45-footer, designed by Bowes & Mower, of Philadelphia, and built by W. P. Kirk, of Toms River, N. J.

Dr. Alfred G. Mayer, the director of the Department of Marine Biology, will be in charge of the work on board, and Capt. Ivan C. Lundblom will be the master of the vessel. The cruising ground will be along the Florida

coast and among the Bahamas and the West Indies, and the boat will work in conjunction with the laboratory on an island in the Dry Tortugas.

The boat above is Margo, a 45-footer, re-

cently launched at the yard of W. P. Kirk, of Toms River, N. J., for Mr. Frederic A. Nathans, of Philadelphia. She was designed by Messrs. Bowes & Mower, of Philadelphia, and her plans were published in January.

Raised Deck Auxiliary Schooner.

Signal, a Unique 45-Footer, Probably the First Boat of Her Type to be Constructed.
Not Altogether Beautiful as to Her Lines, but a Good All-Round Cruiser.

WHILE raised-deck sloops have already been built, it has remained for Mr. W. W. Varney, of the Corinthian Yacht Club of Baltimore, to produce the first raised-deck schooner, a picture of which is shown at the bottom of this page.

This schooner, Signal, was originally a trunk-cabin vessel of the usual type and on it Mr. Varney cruised for seven years. The lack of headroom, there being only 5 feet 10 inches, was one of her faults, and in determining whether he would get rid of her or rebuild, he figured out the idea of converting her to the popular raised-deck type.

Beforehand he made his plans carefully, figured out everything he wanted done and then took her to a shipyard where the work of reconstruction was carried out under his supervision. The vessel was cut down to her waterline, below which she was in almost perfect condition, and then, upward, all new wood was put on. To get 6 feet 2 inches of

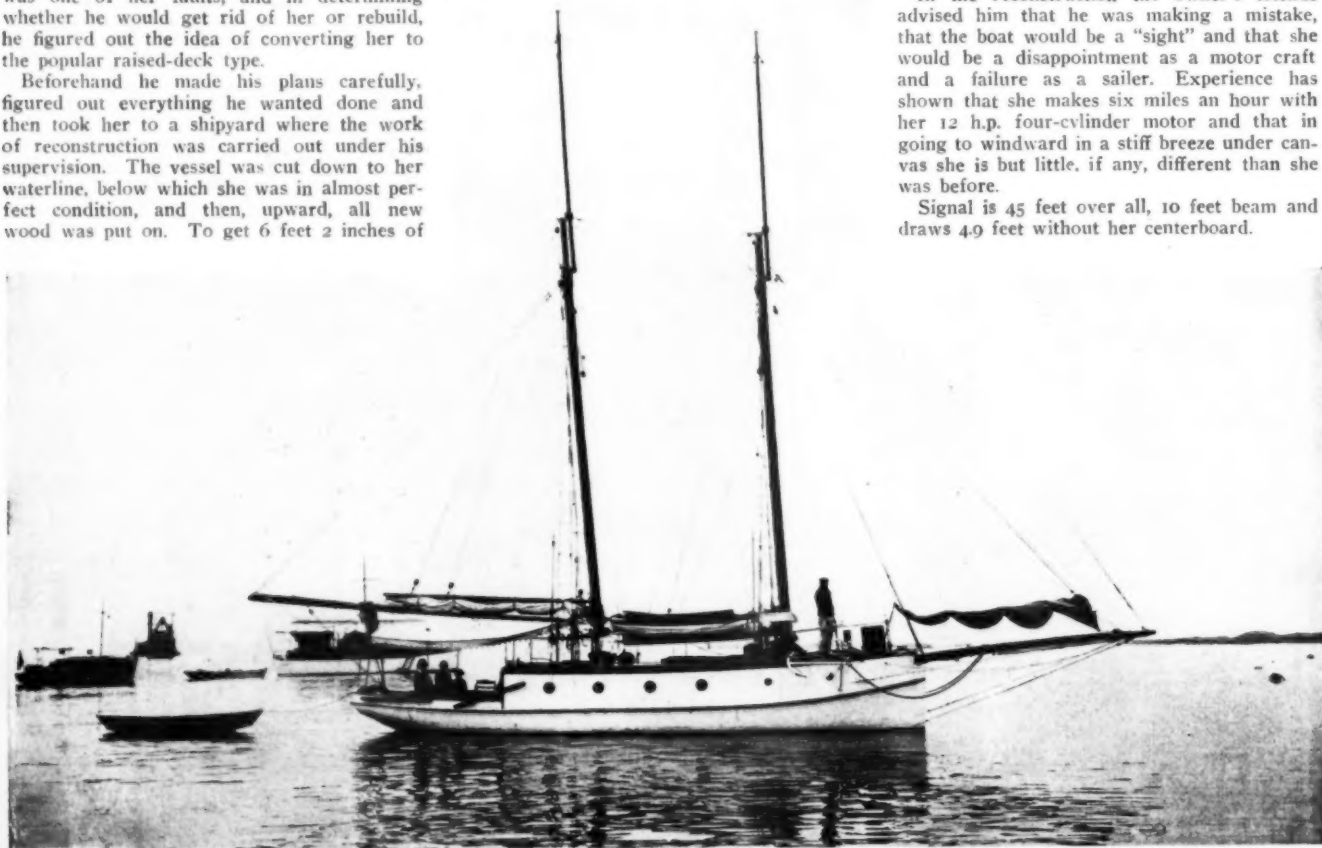
headroom, from the sampson post aft, it was found that the top of the cabin touched the masts but seven inches higher than had the top of the cabin trunk, and as there was sufficient hoist on the mast it was not necessary to alter either the foresail or mainsail. Previous experience under sail had demonstrated that, in a moderate to strong breeze, the boat balanced perfectly without the forestaysail,

so this piece of canvas has been entirely discarded.

By means of a horizontal wheel the vessel, under power, can be steered from forward of the foremast, a secondary wheel controlling the reverse gear while a lever controls the engine. The steering gear forward winds around a drum on the shaft of the steering wheel in the cockpit and, when under sail, this drum can be released by the removal of a bolt.

In the reconstruction the owner's friends advised him that he was making a mistake, that the boat would be a "sight" and that she would be a disappointment as a motor craft and a failure as a sailer. Experience has shown that she makes six miles an hour with her 12 h.p. four-cylinder motor and that in going to windward in a stiff breeze under canvas she is but little, if any, different than she was before.

Signal is 45 feet over all, 10 feet beam and draws 4.9 feet without her centerboard.



The raised deck auxiliary schooner Signal, an original craft owned by Mr. W. W. Varney, of the Corinthian Yacht Club, of Baltimore.

From Motor Boating Readers.

A Department for the Exchange of Ideas and the Discussion of Questions of General Interest.
Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.

MoToR Boating's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers, where desired, in which case it is desirable that initials or other distinguishing signature be appended. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

A Tunnel Stern 60-Footer

To the Editor of Motor Boating, Sir:

Have looked through all my old magazines to see if I could find anything regarding flat bottomed tunnel boats; but find nothing to answer my purpose. I have a motor boat 56 ft. by 8 ft., full tunnel, which will carry nearly three tons on an 18-in. running draft, and with a 22 h.p. engine makes about 10 miles an hour. At $\frac{3}{4}$ load she is able to pass over a log 18 in. under water and clear. She is well built and for a flat bottom boat has exceptionally good lines.

What I would like to know is whether a full tunnel (by this I mean nothing of wheel to project below bottom of hull), say 60 ft. by 15 ft. beam driven by a 30 h.p. engine at 500 r.p.m., 26-in. propeller, would run and handle well. Have never seen such a boat of such beam.

A. F. WILLARD, Livingston, Guatemala.

[A full tunnel in a boat of this size would be thoroughly practical if the top of the tunnel did not extend too far above the water line, for in this case the propeller could not keep the tunnel filled. The normal draft of the 60-footer would probably be in the neighborhood of 20 inches, so that allowing for your 26-in. propeller, you would only need to go about 7 in. above the water line, and more than this amount we would not advise. If you could protect your wheel with a skeg, allowing it to extend somewhat below the bottom of the boat, the arrangement might be more satisfactory, as in this case the tunnel would not have to extend above the water line.—Ed.]

The Gregoire Motor.

To the Editor of Motor Boating, Sir:

Could you people give me any information relating to the Gregoire type motor of $\frac{3}{4}$ in. bore by 12 in. stroke?

RICHARD H. KUEHNE, Detroit, Mich.

[The valves of the Gregoire long stroke motor are in the head, inclined at an angle of 45 degrees, and operated by a central overhead cam shaft, worked from the main shaft by bevelled gearing and a vertical spindle with universal joints. There are two ex-

sets of spark plugs, and in addition a storage battery is used for starting.—Ed.]

A Cruise to Peoria.

To the Editor of Motor Boating, Sir:

May I ask if it would be possible to make a cruise from New York to the Peoria Races, then to the Gold Cup Races and finally back for the British International within the dates set for those races? If such a cruise would be possible for boats making ten miles an hour (except in canals), would you kindly suggest the course?

J. K. VAN DENBURG, New York City.

[The Western Power Boat Association Regatta will be held at Peoria on July 25th and 26th, and the Gold Cup races on the 8th, 9th and 10th of August, giving 12 days in which to cruise from Peoria to the St. Lawrence. The distance from Peoria to Frontenac, via the Illinois River, Lake Michigan, Lake Huron, Detroit River, Lake Erie and Lake Ontario is in the neighborhood of 1,200 miles, and allowing for delays, etc., we believe it almost a physical impossibility to make this distance in the time given, in the regular cruising motor boat.

The British International Races will be held on August 24th, 25th and 26th, in Huntington Harbor, and the intervening thirteen days would be plenty of time to make this stage of the cruise. The course would be via Lake Ontario, the Oswego Canal, the Erie Canal and the Hudson River.—Ed.]



Vermillion Girl, a Pacific Coast 19-footer, doing 20 miles per hour. The boat in the background is the Lurline, winner of the Honolulu race.

haust valves per cylinder, each rocker having double arms and opening both valves at once. The two valves have a combined area greater than that of the cylinder bore. The intakes are on the opposite side, their diameter being a little over three inches, or half an inch less than the bore. The crank shaft is carried on three very large ball bearings, all other bearings being plain. Ignition current is supplied by a Bosch high-tension magneto, with two

"Vermillion Girl"

To the Editor of Motor Boating, Sir:

I enclose a photograph (reproduced herewith) of Vermillion Girl, a 19-footer, of 4 feet beam, as she appears when doing 20 miles per hour. The boat is owned by H. D. Bowles and the entire weight of the boat, engine and one man is about 750 pounds. The engine is a Pierce-Budd of 18 h.p. The

schooner in the picture is Lurline, winner of the race to Honolulu.

GEORGE E. BOWLES, San Diego, Cal.

Speed of a V-Bottom.

To the Editor of Motor Boating, Sir:—

I should like to know what speed I could expect from a V-bottom boat, an article on how to build which recently appeared in MoToR BoatinG, if powered with a single cylinder, 4 in. stroke, two-cycle motor, speed 800 r.p.m., with two-blade bronze propeller 14 in. x 20 in. pitch, weight of engine 160 lbs.? About what horse power would this engine develop, and how much gasoline would it probably use per hour? Do you consider the propeller the right diameter and pitch, and number of revolutions as being the most suitable, or would you suggest some change?

C. W. ADAMS, Washington, D. C.

[Your engine probably develops in the neighborhood of 4 4/10 h.p. and, for this power and the r.p.m. at which it is developed, the propeller you mention is too large in diameter and too coarse in pitch. We would advise one 12 inches in diameter by 16 in. pitch, and with this wheel, your engine should drive a lightly constructed 22 ft. V-bottom in the neighborhood of eight miles per hour. Regarding the consumption of gasoline, a good average is one pint per h.p. per hour, and on this basis your motor would use 4.4 pints per hour.—Ed.]

Where's the Trouble.

To the Editor of Motor Boating, Sir:—

Will you kindly tell me if I am getting maximum results from the following combination?

My boat is 22 ft. long and 5 ft. wide on the water-line. It has a Normand stern which is wide and flat and the bow is sharp on the water-line with a decided flare to the deck. The construction of the boat is moderately heavy; ribs are 3/4 in. x 1 1/2 in. oak and the planking is 5/8 in. cedar. The boat draws 10 inches at the stern and 12 inches amidships. The transom is just clear of the water when the boat is at rest.

The engine is a 2-cylinder, 2-cycle 8 h.p. and turns my present propeller 705 r.p.m. The bore and stroke are 3 3/4 by 3 1/2 respectively. The propeller is 16 inches in diameter and the pitch is 20 inches. It has three blades each 4 inches wide. This wheel works behind a skeg which is 2 1/4 inches thick. The boat makes practically 9 miles an hour under favorable conditions. Several propeller manufacturers tell me that my boat should make nearly 10 miles an hour.

A. S. ATWATER, Champlain, N. Y.

[We believe that your speed of "9 miles under favorable conditions" is too low for your combination of boat and engine. While your boat may be a trifle too heavily constructed for your motor, we believe that the combination should do 10 miles an hour. Your 16 x 20-inch propeller is probably the best size for your conditions, but the slip being something over 30%, is too great.

You say that the wheel works behind a 2 1/4 inch skeg and it is probably at this point that the difficulty lies. We would suggest that you cut this away for some distance in front of the wheel and taper the after-edge of it in order to allow an unobstructed flow of solid water to the propeller. This may necessitate the use of a projecting bearing to support the shaft or else the use of a strut, but the results should warrant the trouble.—Ed.]

Wiring the Ignition System.

To the Editor of Motor Boating, Sir:—

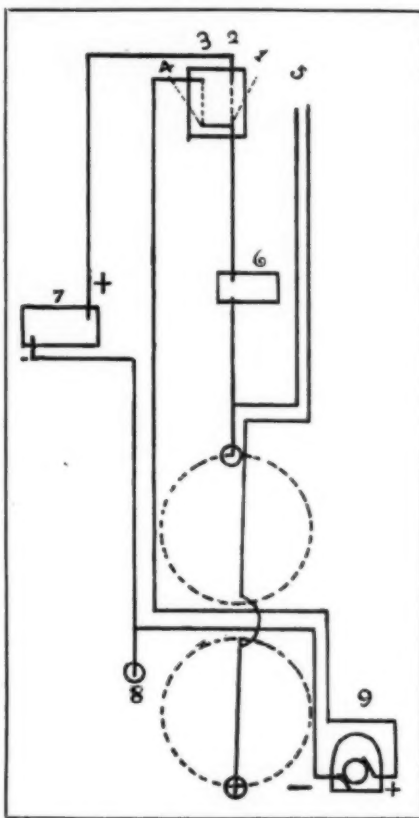
Will MoToR BoatinG let me know if it considers this wiring scheme O. K.? The explanation is as follows:

1, battery disconnected; 2, battery connected to start engine; 3, dynamo connected only; 4, dynamo disconnected; 2 and 3, dynamo firing

engine and charging storage battery; 5, switch to cut out one cylinder when running neutral; 6, coil; 7, storage battery; 8, ground on engine; 9, dynamo.

WALTER REYNOLDS, Brooklyn, N. Y.

[We have looked over this diagram and find it O. K. We would suggest, however, a switch of the kind described by Mr. Marshall in his article in the May issue, as by the use of such a switch the operations you describe are performed automatically. We would suggest, also, an automatic cut-out switch to prevent the storage battery from discharging back through the dynamo when the speed and consequently the current of the latter is reduced by a throttling down of the engine. If this is not employed, the storage battery will discharge back through the dynamo and the amperage will probably be sufficient to burn out the latter.—Ed.]



Walter Reynold's Wiring Diagram.

Changing a 2-Cycle to a 4-Cycle.

To the Editor of Motor Boating, Sir:—

I would like to ask you a few questions in regard to changing a 2-cycle engine into a 4-cycle. I have read in some of the magazines that it is not practical, and if not, why? I have a double-cylinder 1905 model Smalley, and am making the change, and see no reason why it will not give satisfaction. The engine has a poppet valve in the head instead of a port in the cylinder and am using this for the exhaust and am cutting through the cylinder wall between piston and head for the intake and do not see any reason why it will not work. I have in mind a 3-cylinder Fay & Bowen that I wish to change if there are no objections that cannot be overcome.

C. H. OVERTON, Reedville, Va.

[We do not ordinarily advise changing a two-cycle motor to one operating on the four-cycle principle, as we are unable to see the benefit to be derived from such a change. A higher r.p.m. would be used, but even so, and with the higher mean effective pressure, it is doubtful if the power developed could be made very much greater than that of the original two-cycle motor.

With the facilities you have at hand the actual conversion of the motor should be

practical and you could doubtless effect some saving in fuel over a two-cycle motor delivering the same power.—Ed.]

Power "Dink" for a Yawl.

To the Editor of Motor Boating, Sir:—

I have a 30-foot yawl, 22 feet on the water-line, 9 feet beam, but as cockpit is very small, and there is no room in cabin on account of centerboard, I cannot put an engine in her. So I want to put an engine in my tender, and when I am becalmed lash her alongside.

Now, my tender is 10 feet long, 3 feet 9 inches beam, cut-away stern and plumb stem, and I have bought a 2 h.p. Murray & Tregurtha engine which I wish to install in the tender. But several old-time boatmen have told me that this tender will dig down too much at the stern, and that she will hardly be able to tow the yawl.

JOSEPH THIELE, New York City.

[There are a great many tenders of the kind you describe working satisfactorily, and we see no reason why yours should not do so. Ten feet is, to be sure, a very short over-all length, and with the stern cut away as you describe, the boat will undoubtedly squat considerably, but as far as her towing ability is concerned, if the motor is not designed for too high an r.p.m. and if the pitch of the propeller is not too great, it should work satisfactorily.—Ed.]

Regarding the Richelieu Rapids.

To the Editor of Motor Boating, Sir:—

Glancing through the current number of MoToR BoatinG I notice a letter from R. S. Blake of New York asking for information concerning the rapids in the St. Lawrence, especially referring to the Richelieu Rapids which are in the St. Lawrence River, but which seem to be confused with the Richelieu River.

Four years ago the writer made the trip from Montreal to Quebec, and on the journey down went through these rapids and did not notice any difference in the water or current. On the trip back I stopped at a place called Pt. Platon, a few miles below these rapids, and on consulting with a river schooner captain as to the best time for going up, found that by going up on the flood tide it was an easy matter, and that they became invisible, and in fact that the current is running up river at that period, for about two hours.

For your information I may say that the Canadian government has issued a very complete set of charts covering the whole St. Lawrence channel to the Gulf. These can be had by communicating with the Marine Department, Ottawa; and for information respecting the tides which ascend the river as far as Three Rivers, would refer you to the tide tables which can be purchased from T. J. Moore & Co., Quebec City.

C. DE WOLF REID, Montreal, Can.

The Right Propeller.

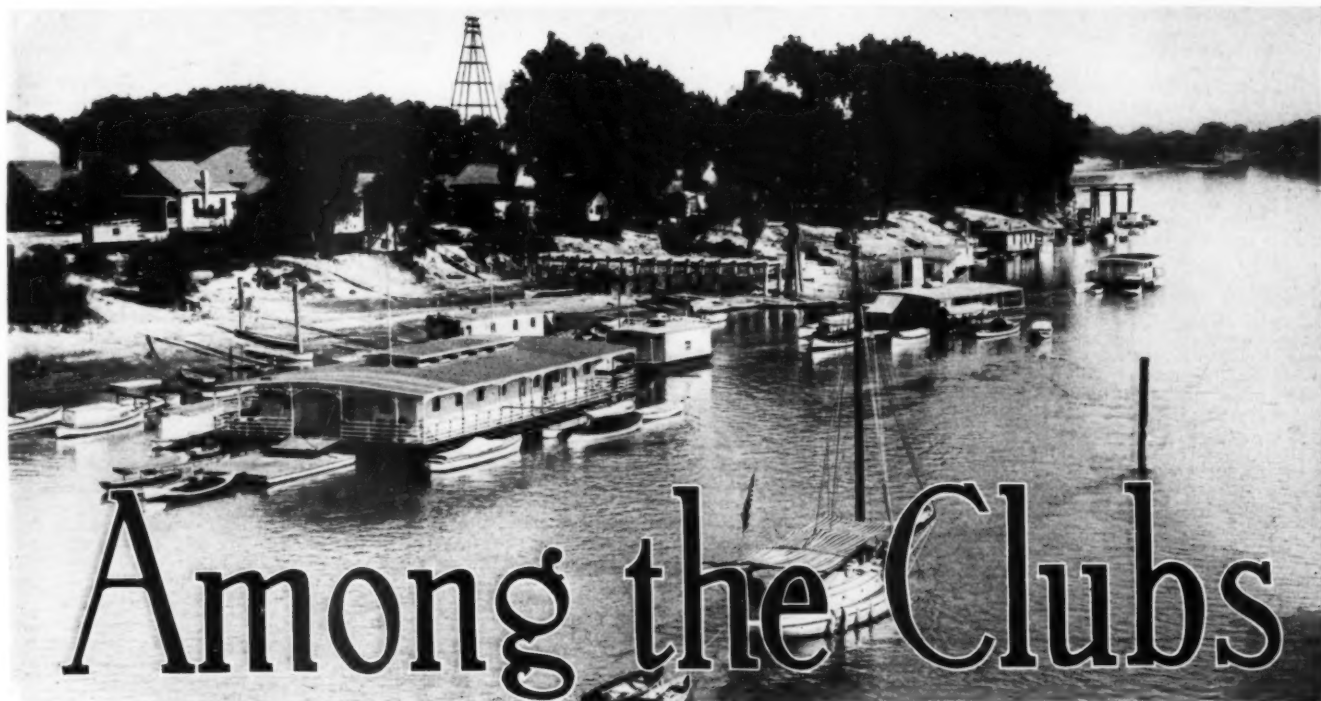
To the Editor of Motor Boating, Sir:—

I would like to have you advise me in regard to a propeller, which I am about to install in my boat. She is 25 ft. over-all, 7 ft. beam, with a slight V to the bottom; the engine is a Gray Model T, 14 h.p., rated to run at 700 r.p.m.

I have been told that a 3-blade propeller of 20 in. diameter and 28 in. pitch would give the boat a speed of 14-15 miles per hour. What is your opinion about it?

L. MANZ, Newark, N. Y.

[Unless your motor develops more than its rated h.p. we do not believe that the 20 in. by 28 in. propeller would give you as good results as a 20 in. by 25 in. one, which size we advise, and unless your boat is an exceptionally light one and easily driven, you will probably not get more than between 12 and 13 miles per hour with this power.—Ed.]



Home of the Sacramento Boat Club, on the Sacramento River, California.

Hudson River Yacht Racing Association. The annual regatta of the H. R. Y. R. A. will be held this year on Labor Day with the Yonkers Yacht Club, Yonkers, N. Y. The following clubs compose the association: Columbia Y. C., New York M. B. C., Yonkers Y. C., Tarrytown Boat Club, Tarrytown Y. C., Tappan Zee Y. C., Shattemuc Yacht and Canoe Club, Highland Y. C., Newburgh Y. C., Pough-

keepsie Y. C., Rondout Y. C., Albany Y. C. There has been a great deal of interest in these regattas in recent years. The meeting last year at Ossining brought out one hundred and eighteen entries, including some of the best known motor boats in the country.

The Detroit Motor Boat Club, Detroit, Mich., has the following coming events on its schedule: July 1, club cruise to Mt. Clemens, Mich.; July 8, third series, motor boat novelty contests; July 15, fourth series, motor boat novelty contests; July 22, club cruise to Chatham, Ontario; July 29, fifth and final series, motor boat novelty contests. The Great Lakes Motor Boat League regatta occurs at Detroit on August 3, 4 and 5, immediately preceding the start of the Scripps Trophy reliability cruise on August 7.

The Riverton Yacht Club, Riverton, N. J., is in charge of the following staff of officers for 1911: Commodore, John H. Reese; vice-commodore, Robert Biddle, 2nd; secretary, Eugene J. Bush; treasurer, Charles M. Biddle, Jr., and measurer, H. B. Hills. P. R. MacKinney and H. B. Hills constitute the motor boat committee. Twenty-five motor boats are in the club's fleet, and will take part in several races this season.

The Cedar Rapids Motor Boat Club, Cedar Rapids, Iowa, held its opening races on May 30, and the program will be completed with races on July 4 and September 4. The club holds its races over a course of three and two-tenths miles on the Red Cedar River, and provides silver cups for each of these four classes: tunnel boats, boats 21 feet and under, handicap, and free-for-all. Officers were elected for 1911 as follows: Commodore, A. H. Roth; vice-commodore, Dr. William Finn; rear commodore, Jonathan H. Pease; fleet captain, Dr. C. N. Booth; treasurer, M. J. Myers; secretary, Dr. J. H. Calder; trustees, Robert I. Larimer, Dr. C. N. Booth. At the meeting that elected officers, important action was taken when the club appropriated money for the cutting of a channel through to Kelsey's Bend, by a steam sand dredge, which will permit navigation much further up the river.

The Motor Boat Club of Louisiana, New Orleans, La., is discussing plans for building a club house and dredging out a motor boat harbor at an island at Spanish Fort. The island has long been considered a desirable location for a club house, but until lately the lack of good transportation facilities to Spanish Fort has militated against its use. The plan contemplates either the lease or purchase of the island, building a club house for about \$5,000, and the expenditure of an equal amount for dredging. The island at present is subject to overflow and it is proposed to dredge the bayou and fill the island with the earth from the bottom of the bayou. The railway company has

promised the erection of a boat wharf along the bayou. Commodore Thomas Sully of the Motor Boat Club believes that there is great need of a new harbor for some of the many boats plying Lake Pontchartrain that now find a home along the banks of the New Basin Canal and Bayou St. John.

The National Yacht Club, Brooklyn, N. Y., held its first regatta of the season May 30,

New England Championship Trophies.

The New England Engine and Boat Association has announced the list of trophies offered for the fifth annual New England championship at Boston, July 4, as follows:

Class A. The New England Engine and Boat Association Bronze Challenge Trophy. This is a large and very beautiful piece of bronze especially designed for the association. This will be held by the temporary winner, subject to challenge under the conditions given in the deed of gift. To become the permanent property of the owner winning it two successive years.

Class B, trophy to be announced later; Class C, silver trophy, donor, A. P. Homer; Class D, silver trophy, donor, The Atlantic Co.; Class E, silver trophy, donor, Geo. W. Campbell; Class F, silver trophy, donor, Chas. J. Jager Co.; Class G, silver trophy, donor, Murray & Tregurtha Co.; Class H, silver trophy, donor, Chester I. Campbell; Class I, silver trophy, donor, Thomas Fleming Day.

Large, handsome, burnished copper and silver trophies will be given as second prizes in each class.

A third prize in Class H will be given, consisting of a nickel-plated Aaron automatic bilge pump.

A third prize in Class I will be given, consisting of a single cylinder Perfix ignition outfit.

Championship pennants will be awarded to winners in Classes C, D, E, F, G, H and I.

This is expected to be the greatest motor boat race ever held in New England. Entry blanks and full particulars may be obtained from any of the Regatta Committee, which is composed of the following: Norman L. Skene, chairman, Bedford, Mass.; A. N. Dodge, 37 Haverhill St., Boston, Mass.; A. P. Homer, 88 Broad St., Boston; Chester I. Campbell, 5 Park Sq., Boston; and W. B. Stearns, 10 P. O. Sq., Boston.

New York to Camden Ocean Race.

The motor boat race from New York to Camden, N. J., under the auspices of the New York Motor Boat Club and the Camden Motor Boat Club, will start on August 4, at 10 a. m., off the New York club's house at 147th St. and Hudson River. The finish will be off the club house of the Camden Motor Boat Club, Delaware River and Seventh St., Camden, N. J. To quote from the conditions announced for the race:

Boats eligible.—Race for cruising boats of not less than 30 feet over-all length, and not exceeding in the greatest length 50 feet over-all, and with a waterline breadth of not less than one-fifth of the waterline length, and enrolled in any recognized club. A cruising boat is one built and used for cruising, having a raised foredeck or trunk cabin and self-bailing cockpit. Cabin must contain sleeping, cooking and general living accommodations for crew.

Course.—Course will be from New York Motor Boat Club, New York, down the Hudson River to New York Bay, passing Sandy Hook, Barnegat, Atlantic City and Cape May to Delaware Bay, thence up the Delaware River to the Camden Motor Boat Club, Camden, N. J., a distance of 225 nautical miles.

Time of finish.—Boats must finish within forty-eight hours after start, when race will be called off.

Entries.—Entries must be made in writing to the Regatta Committee of either club not later than July 22, 1911. All boats entered must report to the Regatta Committee at the New York Motor Boat Club, not later than 6 p. m., August 3, 1911. The committee reserves the right to reject any entry.

Rating.—All boats will race as one class, and be rated under the 1909 A. P. B. A. rules. No unrated boat will be allowed to start.

Measurements.—All boats must be measured jointly by the official measurers of the two clubs. Applications for measurements must be made on or before July 22, 1911, and boats must be placed at the disposal of the measurers at a place and time named by them.

Crew.—Only amateurs will be allowed on the boats during the race and the crew of each boat shall consist of not less than four persons. In the event of the owner not being on board during the race, he must be represented by a member of a recognized club. A list of the names and vocations of all the members of the crews must be given the committee before the start of the race.

Entry blanks and additional information may be obtained from the Regatta Committee of either club. The Race Committee will consist of the members of the regatta committees of both clubs, with C. F. Johnston, 2221 Concord Ave., Camden, N. J., as chairman. The secretary is C. F. Chapman, 611 West 152d St., New York City.

on the Lower Bay. Twenty-six sailing craft took part in different classes. Four motor boats went over a special course of 20 1/4 miles. Vice-commodore A. C. Soper's Sim Too finished first, but was beaten on corrected time by Suis Moi. The corrected times for the first three boats were: Suis Moi, 2:39:12; Sim Too, 2:42:51; Neptune, Jr., 2:48:07.

The Monongahela Motor Boat Club, Monongahela, Pa., is a new club organized with thirty members, owning twelve boats. The officers are: Commodore, Henry Louttit; vice-commodore, Claire Shepler; secretary, Averill Williams; treasurer, August Jonas.

The Sandy Hook Bay Yacht Club, Atlantic Highlands, N. J., went into commission on Memorial Day with thirty charter members owning boats. The club has fine quarters, having purchased the former station of the New York Yacht Club, located on the end of a long pier, with a good depth of water. Ocean racing will be a feature of the club's activities. The officers are: Commodore, H. Taylor Sherman; vice-commodore, William B. Smith; rear commodore, Frank L. Bailey; treasurer, W. H. Posten, and secretary, William Friedlander.

The Clinton Boat Club, Clinton, Iowa, is planning for an enjoyable season of motor boating activity on the Mississippi. The club was recently incorporated and the articles mention as some of the objects of the club, the building, equipping and maintaining of a club house for members, furnishing and maintaining a convenient harbor for mooring and keeping boats, and imparting to members knowledge of the rules of navigation. S. C. Seaman is president; D. F. Scribner, vice-president; W. C. Eastland, secretary, and Earl W. Schmitz, treasurer. The following are trustees: George B. Phelps, C. B. Mills and R. A. Maples.

The Hudson River Motor Boat Club, New York City, recently decided to issue a challenge for a race on rather novel lines to any motor boat club on the Hudson River within twenty miles of the challenging club's anchorage at the foot of West 151st Street. The conditions are: "That each of the competing clubs enter ten of its fastest and most reliable boats in a race without any allowance in the way of handicaps, that each boat be credited with as many points for its club as the number of boats it beats plus one. That the winning club receive a shield engraved with the names and places of all competing boats and the number of points. That there be two such races at least one week apart and that any boat which does not enter both shall be disqualified. That the boats making the best time be awarded a suitable trophy and that every boat which finishes be awarded a miniature of the shield given to the winning club. Other details to be decided upon by the regatta committees of both clubs. The club feels that such a race will be a real sportsmanlike event, as it will involve reliability as well as speed, that it will tend to promote friendly feeling among the members of clubs and that the results will be of general interest."

The club also decided to hold an open race to Poughkeepsie and back some time early in September.

The New York Motor Boat Club, West 147th Street and Hudson River, New York City, went into commission on May 28, when two novel events were run off, a four team relay race in the afternoon, with four boats to each team, and a lantern hunt in the evening. The relay race was over a triangular course of three miles. Handicaps were based on the best actual time of each boat over a measured mile course last season. Each team was assigned a different colored flag. As the first boat in a team approached the finish line her relief ran alongside and took the flag, the third and fourth boats doing the same. Each boat was cheered by the hundreds assembled at the clubhouse as she passed the finish line. The "red" team proved the winner with the "yellow" team second, the "green" team third and the "white" team fourth.

The summaries follow:

Red Team (1).		Start.	Finish.
Boat and Owner.		H.M.S.	H.M.S.
Rex, H. L. Allen	.....	3:30:22	4:00:30
Sea Fox, C. J. Breck	.....	4:00:30	4:27:45
Arlington, H. J. Klipper	.....	4:27:45	4:51:30
Respite, V. C. Peterson	.....	4:51:30	5:11:10
Yellow Team (2).		Start.	Finish.
Gracelda, D. B. Brinsmade	.....	3:30:45	3:53:35
Quita, D. Menke	.....	3:53:47	4:20:30
Edith M., W. A. Madison	.....	4:20:30	4:45:50
Tyro, C. J. Leonard	.....	4:45:50	5:13:30
Green Team (3)		Start.	Finish.
Twin Kid, P. A. Valance	.....	3:30:22	3:56:55
Monreve, E. E. Barnes	.....	3:56:55	4:18:40
Mabel F., J. Flynn	.....	4:18:40	4:47:15
Bjondy, A. Sacht	.....	4:47:15	5:19:30

White Team (4).

Kid H. C. H. Douglas, Jr.	.....	3:45:30	4:10:30
Mon Plaisir, W. Latimer	.....	4:11:00	4:34:30
Wag, M. Kellogg	.....	4:34:10	5:02:30
Consort, C. F. Chapman	.....	5:02:30	5:26:00

The lantern hunt in the evening was an original sort of contest, and roused much interest. It was open to all boats enrolled in the club, without restrictions, and the object was to locate any one of three dinghies, each having a lighted red lantern placed upon its thwart, anchored within a mile and a half of the committee boat. The first boat returning to the committee boat with a dinghy and its mooring, and red lantern still lit was declared the winner.

As we go to press with this form, the club is preparing for the Sealed Order race on June 11, and the Tarrytown Light race on June 18, and the club race scheduled for June 24. The club's third annual open race from New York to Albany and return starts on July 1, and a record-breaking race is expected, both as to the number of entries and the time over the course. Club races will be run on July 8 and 22, August 5 and 19, and September 2.

Columbia Yacht Club, New York City. At a meeting of the Board of Trustees of the Columbia Yacht Club held May 26, in the club house at the foot of West Eighty-sixth Street, Vice-commodore William Evelyn Porter was elected commodore to succeed Charles A. Starbuck, resigned; Rear Commodore Russel Dart was elected vice-commodore to succeed Dr. Porter and S. Alling Halsey was elected rear commodore.

At a dinner given by Commodore Porter to the trustees at the club house the same night, a beautiful fourteenth century drinking horn was presented by the club to Charles A. Starbuck, the retiring commodore, in recognition of his services as the head of the organization from 1904 to 1911.

The Eureka Yacht Club, Hackensack River and Plank Road, Newark, N. J., has made plans for several events of the season still to come, which will keep things interesting for the members. The Commodore's Cup race for small boats will be held on July 9 and on July 23 the club will take part in the Waterway League's run around New York City. On September 10 comes the annual club dinner, on September 24 the club championship race, 40 mile course around Staten Island, and on October 8 the Treasurer's Cup race for large boats. Evidently the Eureka motor boatmen mean to get as much sport out of the season as they can, for the closing day does not come until October 22.

The Tarrytown Boat Club, Tarrytown, N. Y., after a winter of successful social affairs, signaled the opening of the active boating season by a club dinner on May 20 at the Hotel Tarry. The club now has a membership of 150 men, including about 50 boat owners and many canoeists, and extensive improvements to the club's property provide better facilities for caring for visiting yachtsmen. The officers for 1911 are: Commodore, F. A. Russell, Jr.; vice-commodore, E. W. Bowne; secretary, E. Lester Crocker; treasurer, W. H. Aldridge; fleet captain, Peter Jacobson; gasoline custodian, F. V. H. Peters.

The club's opening race was held on the morning of Decoration Day, for the Commodore's cup, over a four and one-half mile course of three legs in front of the club. G. Fitzgerald's Hobo won, with B.I.T., Paul Thomas, second, and Phi. Crocker Brothers, third. Canoe races and tilting contests furnished the afternoon's sport.

The Furniture City Launch Club, Grand Rapids, Mich., inaugurated its 1911 season with a marine parade of fifty boats from Grand Rapids to the new club house, located down the river about eight miles below the city. The new club house is expected to be an important factor in a successful season. The new officers of the club are: Commodore, E. J. Chamberlain; vice-commodore, E. P. Platt; treasurer, W. H. Holcomb; financial secretary, E. J. Clark; secretary, B. A. Talbot.

The Williamsburgh Yacht Club, at North Beach, on Flushing Bay, Long Island, N. Y., on its fortieth annual "Going into commission day," called out one of the largest delegations in the history of the club since its incorporation in 1871, augmented by guests from neighboring yacht clubs. An entertainment and dance was held on May 30.

The Robbins Reef Yacht Club, Bayonne, N. J., is very active in motor boat racing this season. The club went into commission on May 30, and club races were held for Class

A open boats and Class B cruisers. On June 17 a fifty mile triangular race for all classes took place, and June 25 was the day of the annual club run, to Rossville, Staten Island. On July 4 a race will be run around Staten Island for a cup to be known as the "Rear-Commodore's Cup," presented by Rear-Commodore Probst. This cup will become the personal property of the first man to win it twice in succession with the same boat. Other events scheduled are: July 15 and 16, club run to Shrewsbury; August 6, club race; August 20, club run to Keyport; September 3 and 4, club run to West Point.

The Lakewood Yacht Club, Rocky River, Ohio, is publishing a monthly magazine, The Barometer, under the editorship of Byron B. Brockway, which is full of live news for club members. Interest just now is largely centered in the coming meeting of the Inter-Lake Yachting Association at Put-in-Bay, Lake Erie, July 16-22. Commodore Alexander Winton of the Lakewood Yacht Club is also commodore of the I.-L. Y. A., and his new motor yacht La Belie will serve as flagship at Put-in-Bay.

The Royal Hamilton Yacht Club, Hamilton, Ontario, has an unusually complete program of club races and other events for the season. Motor boat races yet to come are: July 8, races for classes C and D; August 7, handicap motor boat race; August 19, races for classes C and D; August 26, International motor boat race.

Exhaust Muffling in the British International. In response to a letter from Commodore H. H. Melville, of the Motor Boat Club of America, requesting an official interpretation of the rule governing the silencing of engines in the coming races for the British International Trophy, W. A. Jupp, secretary of the Royal Motor Yacht Club of Great Britain, has sent a written reply to the effect that the engines should be silenced to the satisfaction of the international committee.

The general idea abroad, Mr. Jupp states, is that the exhausts should be muffled to prevent their proving a nuisance to vessels in their immediate vicinity. The owners of the several speed boats being built for the forthcoming elimination trials to select the American team to defend the trophy at present held by the Dixie II, have been anxious for the English yachtsmen to pass on the exhaust question.

The Pensacola Yacht Club and Motor Boat Club, Pensacola, Fla., held a housewarming in its new club house on May 31. The new club house is located at the foot of Alcaniz Street, and provides a comfortable gathering place for the many motor boatmen of Pensacola. On June 2 the opening regatta was held, the boats racing over a seven-mile course. The club is planning to hold an Inter-State regatta, following its annual regatta, in which the fastest craft in the South are expected to participate.

The Buffalo Launch Club, Buffalo, N. Y., opened the motor boat racing season on the Niagara River on May 30. The club house and grounds were decorated, and after the race a large number of the spectators remained for the dinner and dance. The race for speed boats was a scratch affair, over a ten-mile course, and resulted as follows:

Place.	Name-Owner.	Time.	Avg'e speed.
1.	Elfralo, A. Hoefler	31:04	19.35
2.	Nokomis, H. Girvin	31:25	19.15
3.	Nossidda, H. Vars	32:53	18.27
4.	Iris, C. Alt	34:52	17.22

As we go to press the Buffalo Launch Club is planning for a race on June 17, and a big race on June 29, during the Woodmen's Convention in Buffalo, which is expected to bring out a big field of new boats.

The Maumee River Yacht Club, Toledo, Ohio, held opening races on May 30, off Walbridge Park. In the speed boat class Ketcham's boat made the best time, covering the 11-mile course in 43 min. 10 sec. The open motor boats were started at 2:30 p. m. and finished in the following order: Crook, 3:43 p. m.; Inez, 3:48:44; Gladys, 3:48:55; Wie Gehr's, 3:51:30. May entered, but did not finish.

The cruising class motor boats started at 2:50 o'clock, and finished as follows: Nomad II, 4:16:42; Red Wing, 4:17:22; Marguerite, 4:20:10, and Thompson, 4:21:20. The Butler and the Arawana were also entered in the race, but did not finish.

The speed boats started at 3:15 and finished as follows: Ketcham, 3:58:10; Nomad III, 4:03:47; A. H. K., 4:07:52, and A. W. T., 4:17:16.

(Continued on page 73)

New Things for Motor Boatmen.

New Attachments and Accessories That Are Offered to the Man With a Boat.
The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions and, whenever possible, illustrations of the various devices designed to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's installment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING which will form, together, a very complete illustrated directory of the things the motor boatman needs. —In writing the makers of the articles shown, if our readers will mention MOTOR BOATING they will receive special attention.]

Richardson Lighting Unit.

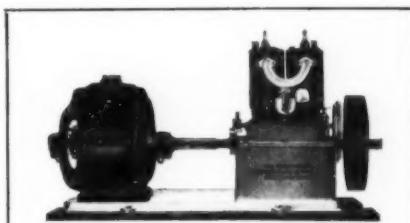
A specially-constructed lighting unit has been devised by the Richardson Engineering & Mfg. Co., of Hartford, Conn., which consists of a two-cylinder motor mounted upon an aluminum sub-base and carefully lined up with a 4 K. W. generator upon the same base and coupled with a keyed sleeve. The generator may be furnished with any voltage to order though the standard is 110. The electric governor which was originally designed by the company for the smaller two-cycle sets met with such success that it is also being used in a larger type upon these sets. This governor works from the generator directly on the throttle of the carbureter and results in very steady running. A bilge or air pump may be arranged on the sub-base between the engine and the generator; these are worked by gears thrown in or out by means of a clutch on the main shaft. The extra cost of these pumps is \$150. The weight of the complete BD-6 unit shown in the accompanying illustration is 700 pounds and the price is \$950. The finish is in baked blue enamel and there are few highly-polished parts, the lines being very simple.

O'Neill Automatic Electric System.

The O'Neill Lighting Company, of Detroit, Mich., have recently perfected an electrical system which is designed to serve the purpose both of starting the motor and furnishing current for the lights. The system involves the use of what is termed a "dynamo-motor" combined with accumulators which float on the line, acting both as reservoirs and as an automatic means of positive control. The dynamo-motor is connected to the motor shaft either by gears or a silent chain, and when the motor is running this instrument acts as a generator, supplying all the necessary lighting and ignition current and storing the surplus in the accumulators. The motor may be started at any time by touching a button or switch located upon the bulkhead or upon the steering wheel. This cuts the accumulators into the circuit with the dynamo-motor, which then acts as a motor and turns the engine, returning the current to the generator it has previously supplied. The operation of another switch or button illuminates the water for a distance of 2,000 feet ahead through the use of a 100-candlepower bulb in the searchlight, which is lighted from the accumulators in the same way. The generator used with the system is but little larger and slightly heavier than a dual system magneto and is steel-clad and water-proof. The maximum output is obtained at a medium speed, but remains constant at any speed higher than this. The device has proved very efficient in starting motors of the highest power and is very economical in its operation.

Ballite Spark Plug.

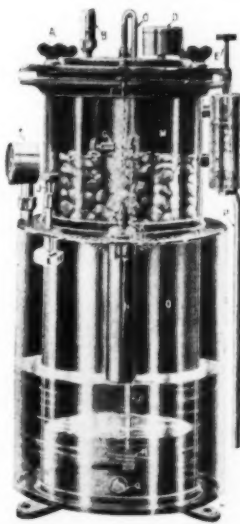
The G. A. Walker Machine Company, of 51 Chardon St., Boston, have brought out a spark plug known as the Ballite plug which can be used in connection with a magneto as well as with a battery and while very simple in construction is thoroughly mechanical in every respect. The insulation is of a high grade, hard fire porcelain of a special pattern, securely packed, which insures against firing through, and the plug is so constructed that it is said to be proof against leaking or sooting. It is made in A. L. A. M., half-inch and metric sizes, and sells for 75 cents. It will be noticed that the base of the plug is well protected and the points are so located that they will not easily collect carbon.



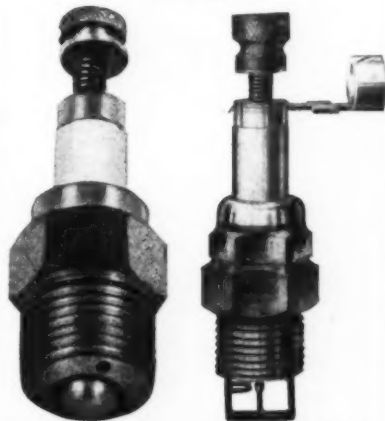
The Richardson Lighting Unit.



The Marvel Carbureter.



Phantom View of the Pressure Gas Generator.



The Ballite Plug. The Sleaford Plug.

Marvel Carbureter.

Although the Marvel Carbureter is made in a number of special types for various motors, there are two models made for 1911 which are standard and which embody a number of improvements over the ordinary type. This carbureter is made by the Marvel Carbureter Company, of Indianapolis, and the two types are known as "F" and "H." These are similar except that the latter type is equipped with a hot air jacket around the throttle which is so arranged that the most heat is applied at low speeds when it is necessary to prevent condensation, and is shut down when the throttle is opened. This arrangement eliminates the possibility of reducing the efficiency of the motor by applying too much heat when the throttle is opened. The carbureter can be applied in any position found desirable, either vertically or horizontally, and with either a pipe or a flange fitting. All parts are interchangeable and are made from red brass with the exception of the spring and float valve, which are of phosphor bronze. The spray nozzle is located in the center of the chamber, which insures a constant quality of the mixture regardless of the level of the carbureter. The prices of type F range from \$10 for a 1-inch opening to \$20 for a 2-inch opening, and of type H from \$15 for a 1-inch opening to \$30 for 2-inch opening.

Pressure Storage Gas Generator.

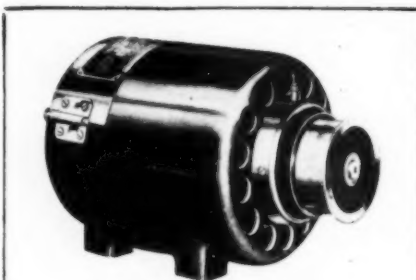
A new type of gas generator has just been patented and is being manufactured by The Pressure Light Company, of Wichita, Kans. The generator is made entirely of heavy brass and has no rubber diaphragms or other parts which will get out of order easily. The phantom view shows the operation of the device. One pound of carbide will make four cubic feet of gas and with carbide at the prevailing price the cost of manufacturing gas with this method amounts to but four-fifths of one cent per cubic foot. All that is necessary is to fill the carbide basket, which holds six pounds or enough to make 30 cubic feet of gas, fill the water reservoir and pump the desired pressure in the tank. The same charge of carbide can be used for short periods at a time, at intervals of days, weeks or months without waste of carbide when not in use as the gas is always stored under pressure and none is generated except as it is used. A filter is provided which removes all dirt and moisture. The generator can be bolted to the bulkhead and the searchlight is always ready to light as soon as the valve is turned. It can be recharged with carbide and water in less than five minutes. The price is \$30. A safety valve is a part of the equipment, which is set to open at 40 pounds' pressure. A gauge is furnished with the equipment so that the proper amount of air pressure may be easily obtained upon refilling the generator. The gauge also indicates whether the generator is working at its maximum point of efficiency.

Sleaford Spark Plug.

The Sleaford Manufacturing Co., of Lansing, Mich., are manufacturing an improved type of spark plug which is shown in the accompanying illustration. It is not necessary to remove this plug from the cylinder for the purpose of cleaning it, as a push upon the fiber nut and a slight turn cleans both the electrodes and the inside of the porcelain. A patented spring which may be distinguished in the cut holds the high tension terminal so firmly that it cannot rattle or work loose and it is very easily attached. The sparking points, it will be noted, are protected by the enclosed base.

"Aplco," Self Starter.

After two years of experimental work in which the objectionable features of ordinary self-starting devices have been avoided, the Apple Electric Co., of Dayton, O., have perfected an electrical starting mechanism which not only performs the duty of cranking the motor but also furnishes electric lights for the boat. The combined starting and lighting dynamo shown in the illustration has been expressly designed for this purpose and embodies many new features which make it especially suited for this work. The company are prepared to furnish this machine made especially for any motor as a part of the regular equipment when desired by the manufacturer.



The "Aplco" self starter.

Newcomb Carbureter.

A carburetor which is quite different in appearance from the ordinary type is being manufactured by the Holtzer-Cabot Electric Co., of Brookline, Mass., and is known as the Newcomb. This carburetor is designed to provide with scientific accuracy the proper mixture of air and gasoline at all speeds for all loads and consists of the usual type of float feed instrument with the addition of a metering mechanism which measures the air supply under all conditions. The carburetor operates on a constant vacuum and automatically enlarges the effective air and fuel openings in direct proportion to each other and to the demands made upon the carburetor for the explosive mixture. The metering mechanism, which is in the vaporizing chamber, consists of a hollow plunger surrounding the pipe into which the gasoline flows from the float chamber. A fuel needle at the upper end of the plunger closes the fuel nozzle and as it rises with the plunger the opening of the fuel nozzle becomes larger, allowing a corresponding increase in the quantity of gasoline drawn off. Openings are also uncovered at the same time which let in air in a relative proportion to the height to which the plunger is lifted. The fuel is distributed from small holes near the bottom of the plunger and the exact proportion of air and fuel is maintained under all conditions. An adjustment is also furnished which slightly increases the mixture for idle running. The prices range from \$45 for 1 1/4-inch size to \$125 for a 2 1/2-inch size.



A 12-foot Dale dinghy.



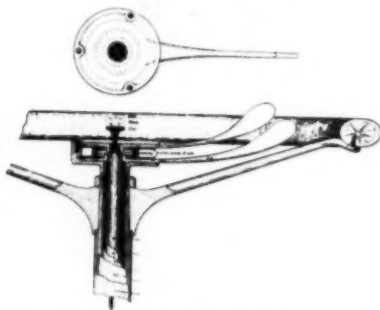
The Newcomb carburetor.

Federal Mazda Lamps.

Mazda lamps for motorboat use are being made by the Federal Miniature Lamp Co., of Cleveland, O., in a number of different sizes for searchlights as well as for sailing lights and stern lights. In addition to this type a tubular model is made which is intended for meter reading, as the light is properly concentrated and the lamp is of the correct shape to throw the light where most needed without occupying unnecessary space. The lamps are very economical in current consumption and give a much more brilliant light than the ordinary type of lamp with carbon filament. For the searchlight the lamps are 10 to 25 candlepower, 6-volt, and for the sailing lights they are of 6 to 8 candlepower, 6 and 8-volt. The tubular lamps are 4 to 6 candlepower, 6-volt.

A New Steering Gear.

In the modern motor yacht the steering gear and binnacle is an item of considerable cost, and with the object of reducing this expense as far as possible the Bath Marine Construction Company, of Bath, Me., have designed the novel little gear shown in the accompanying illustration which is built in several sizes, both with and without binnacles. The stand is composed of brass tubing with a bronze flange for attaching to the deck. Down through the center of this tubing is run a bronze shaft on the bottom of which is carried a pinion running in a casing and acting on a rack. On each end of the pinion are soldered shackles into which the steering line is expanded and soldered. The top of the vertical shaft is carried in a bearing and is attached to the horizontal gear which engages a level gear on the horizontal shaft. The upper end of this carries a mahogany wheel with bronze cheeks and hub. The wheel is built lightly but substantially and the top of the steering gear stand is removable so that it may be reached easily for inspection and oiling.



Sectional view of the Seaman switch rod.



The new Bath Marine steering gear.



A new Stover pipe wrench.

E-Z-Way Motor Grease.

A new form of motor lubricant has been placed upon the market by Bliven & Carrington, Inc., of 116 Broad St., New York City, a distinctive feature of which is the novel form of the can in which it is contained. The grease is sold in a can equipped with a plunger and to fill a grease cup it is only necessary to attach the nozzle, screw the plunger rod into the air-tight can and with a few turns force the necessary amount of grease into the cup without soiling the hands. The grease contained in the E-Z-Way can is of the finest quality, refined from Pennsylvania paraffin base and has a smooth, velvety consistency which reduces friction to the lowest possible point. The air-tight can prevents dust or dirt from mingling with the grease and it is therefore kept at its highest point of efficiency.

The Dale Dinghy.

The accompanying illustration shows a 12-foot dinghy which has just been brought out by William L. Dale, 123 River Ave., The Bronx, New York City. The boat is constructed throughout of cypress and the total weight is 125 pounds. The cost for either a dinghy or a skiff in knocked-down form is \$9 and the lumber is so cut and machined, with all the necessary moulds and plans that any amateur can build it without difficulty and in a short time. Either boat is furnished complete if desired for \$16.

Baldwin Drinking Cups.

A drinking cup in a vest-pocket edition consisting of three cups for five cents, which are said to be "good for 100 drinks," is now being manufactured by the Baldwin Manufacturing Co., 143 Federal St., Boston. The cup folds flat and is provided with a fin at the back which is used for opening the cup and also for a handle. They occupy so small a space, being made from paraffined paper, and fold so flat that any number may be easily carried upon a cruise. For dealers and advertisers the company are manufacturing the article with an advertisement printed upon the face, and sent out to 10,000 names for \$110. Another new article manufactured by the same company is the Baldwin lunch carrier which may be closed like a suit case and opened to form a table. It contains knives, forks, spoons, plates, napkins, table cloth, glass tumblers, and sufficient space for food. These are made in eight sizes and styles and to accommodate two, four, six or eight persons.

Seaman Internal Switch Rod.

The sectional view of the steering wheel and column on this page shows the construction of a new combination internal switch rod made by the Seaman Motor & Launch Works, of Long Branch, N. J. A button is provided for the center of the wheel which may be placed in three positions to turn the current off, or to connect either the battery or magneto with the circuit. The throttle and spark levers are led from a stationary disc in the center of the wheel which does not rotate as the wheel is turned, thus leaving the controls always in the same convenient position where they can be reached in an emergency. The button, too, is so arranged that the motor can be stopped immediately if necessary which is sometimes quite an advantage upon small boats. The controls are led through the steering column to the motor forward of the bulkhead and it is necessary to have neither cables nor wires in view. The wheel is made in several different woods.

Stover Pipe Wrench.

The Wright Wrench & Forging Company, of Canton, O., are manufacturing a pipe wrench, as shown in the accompanying illustration, that is said to be unusually light and strong. The cut shows clearly the operation of the tool and its quick adjustment. It is known as the Stover Pipe Wrench and the jaws are so constructed that they cannot crush the pipe. There are but few parts to this tool and it is made in five sizes, from an 8-inch length which will take a 1/4 to 3/4-inch pipe, selling at \$2, to a 24-inch length, taking a 1/4 to 2 1/2-inch pipe, selling at \$6.

Rayfield Model "F" Carburetor.

A carburetor has just been brought out by The Findeisen & Kropf Manufacturing Co., of 21st and Rockwell Sts., Chicago, to supply the demand for a non-water jacketed carburetor of the Rayfield type to accommodate motors of the smaller size. The general principle of Rayfield carburetor construction is directly involved in the production of this new model, although it is somewhat different in appearance and application. The air and gasoline supply are both mechanically controlled by the automatically admitted air and an important feature of the instrument is its compactness which makes it applicable to every make of motor. It is so arranged that the float chamber may be turned in any direction to accommodate the space available in connection with the motor. The carburetor is made in $\frac{3}{4}$ -inch, 1-inch, $1\frac{1}{4}$ -inch, and $1\frac{1}{2}$ -inch sizes, selling at \$15, \$17.50, \$20 and \$22.50 respectively.

* * *

Lombard Gas Engine Starter.

A new device manufactured by the Lombard Manufacturing Company, 912 Granite Building, Rochester, N. Y., has just made its appearance and its use as a safety device will be appreciated by motor boatmen. Its essential feature is the elimination of possible injury by a back-kick of the motor, and in addition to this the instrument makes cranking a very simple matter. The illustrations show the method of attachment to the motor and the operation of the device. The lower pawl shown in the sectional cut engages when the lever is moved forward and turns the flywheel about one-third of a revolution, a long leverage being provided which permits the motor to be cranked with a relatively small expenditure of energy. If the spark is not caught the first time the operation may be repeated as often as necessary. Should the motor back-fire the entire cranking mechanism is caused to move backward a slight distance, thereby causing the upper pawl to act on its cam surface against the arm of the lower pawl and releasing it from its engagement. This of course prevents the lever from flying back as it is quickly brought to a stationary position by the upper pawl in its travel across the stationary inverted half-circle. The type shown in the illustrations is designed for the heavy marine motor of 10 h.p. or over and is attached to the flywheel by three bolts inside of the rim.

* * *

Chadeloid Varnish Removers.

The Chadeloid Chemical Company, of 100 William St., New York City, owners of the basic patents upon non-acid and non-alkali paint and varnish removers, have recently issued a booklet treating upon neutral paint and varnish removers and telling how and why they work. There are now 60 companies in this country manufacturing paint and varnish removers under licenses issued by the Chadeloid Chemical Company, and each preparation is marketed under a different name. All, however, contain the same basic principles and all the removers are equally useful as cleaners of porcelain, floors, and boat fittings of all kinds. It is necessary only to apply the preparation with a brush and let it stand for a few moments, when the paint or varnish assumes a jelly-like constituency and may be wiped off with a cloth.

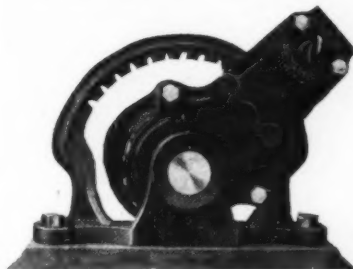
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Inter-Lube.

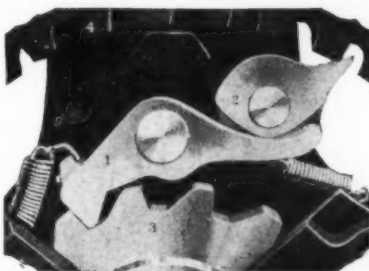
A compound to be mixed with the gasoline supply in the proportion of one quart to 50 gallons of gasoline for the purpose, as its name implies, of furnishing lubrication to the cylinder walls, is being manufactured by the Whitney Chemical Co., of Cleveland, O. This product is said to lubricate perfectly without the formation of a particle of carbon and with its use the crank case oil consumption can be cut down one-half. It mixes readily with the gasoline and does not settle or form sediment, so the carburetor requires no readjustment. Inter-Lube does not burn in the cylinder but is deposited as a spray after each explosion. The price is \$1 per quart or \$3.50 per gallon.



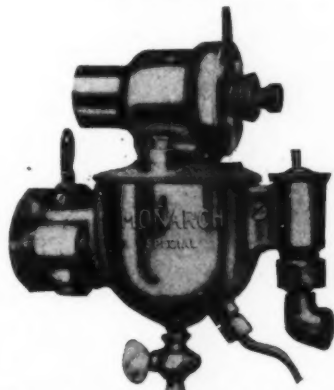
A new Rayfield carburetor.



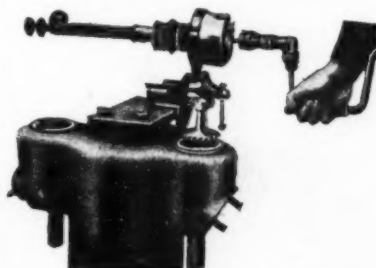
The Lombard starter designed for heavy marine type.



Interior view of starter, showing operation of pawls.



A new type of Monarch carburetor.



The Crone valve truing and re-dressing tool.

Hartman Lighting Switch.

In connection with their automatic generator system of lighting the Hartman Electrical Manufacturing Co., of Mansfield, O., have brought out a new type of bulkhead switch for controlling the various circuits. This switch can be readily used with a straight storage battery as well as with the generator system for which it was designed. It is of the selective, drum type, giving five combinations and by means of a resistance coil, which is part of the switch, the lights can be dimmed when desired. The switch proper is on the engine side of the bulkhead where connections for the various lighting circuits can be easily made. The switch requires only a $\frac{5}{8}$ -inch hole for the stem which is threaded far enough so the switch can be mounted on either a metal or a wood bulkhead. It is held in place by means of hexagon nuts on either side, and the dial which shows is $2\frac{3}{4}$ inches in diameter. It is furnished either with or without a socket for a trouble lamp.

* * *

Silvey Storage Battery.

The Silvey Electric Co., 38 East 5th St., Dayton, O., have designed a new storage battery for ignition and lighting purposes which is used in connection with their special lamps with very good results. These lamps are constructed of a new metal which is said to be lighter than aluminum, as strong as steel and as brilliant as pure silver, though much more easily kept clean. They are so made as to give more light than the ordinary type of lamp. If desired, old lamps can be fitted with these special silver-plated reflectors at a nominal cost and the efficiency is much higher. The storage battery is very substantially made and is constructed entirely of hard rubber and lead. The cost of installing the Silvey system is about the same as the cost of a gas system. The battery is made in three sizes.

* * *

Monarch Special Carburetor.

A new type of Monarch Carburetor has just been placed upon the market by the Monarch Valve Company, 112 Front St., Brooklyn, N. Y. This type possesses all the features embodied in the regular type of Monarch and in addition thereto has a number of improvements which allow a greater ease in starting, obviating the necessity of priming, and increasing the speed flexibility. These improvements consist of a rotating shutter provided with four ports mounted upon the adjustment end of the inlet valve structure with similar openings thereto. There are two adjusting screws with lock nuts and a stop on the top of the air inlet structure. The function of this shutter is to give a positive adjustment to the amount of fixed air that is allowed to enter, in the Monarch Standard Carburetor, through the opening beside the seat of the automatic air valve. In the Monarch Special Carburetor the area through the ports in the inlet valve structure is equal to the total area of the passage through the carburetor, so that the shutter should ordinarily close the openings or ports about three-fourths. This type is made in two models, G, shown in the accompanying illustration, and H, and in two patterns, either horizontal or vertical.

* * *

Crone Valve Dresser.

A valve truing and redressing tool of a new type is being manufactured by F. G. Crone, 334 Genesee St., Buffalo, N. Y. The cut shows the operation of the device. A board may be bolted to the head of a cylinder and the valve dresser is placed in a small vise clamped to the board. The brass lug is placed in the vise horizontally and the expanding shells controlling the adjustment of the valve stem may be adjusted by a light touch of the fingers. To seat the valve an ordinary brace with a screw-driver bit is used. If there is no slot in the valves a Y-shaped screw-driver bit may be employed after two holes have been drilled in the head of the valve. In order to seat the valve the cutter, with the guide attached, is inserted in the valve head opening and turned with a brace and bit. The instrument is made in several sizes.

Wilson Port Light Screen.

The port light screen shown in the accompanying illustration is a novel and useful device which can easily be fitted to any boat. It is sold by Arthur P. Homer, 88 Broad St., Boston and is designed particularly for use upon boats in spots where insects are likely to annoy the occupants at night. The screen is made of polished brass and will fit any port light or ventilator, the meshes being sufficiently fine to prevent the entrance of insects, but allowing a free circulation of air. It is made in eight sizes, from a 5-inch diameter selling for \$1.75 to a 12-inch diameter selling for \$3.50. The ordinary sizes are in even inches, but special sizes may be had to order.

* * *

Essex Battery.

A storage battery at a very reasonable price has been placed upon the market by the Essex Storage Battery & Supply Co., of 272 Halsey St., Newark, N. J., which may be used either for the ignition current or for lighting purposes. The construction is of an original design, the lead grids being exceptionally strong and reinforced, with jars of the single compartment type reinforced in walls of pitch, making them doubly strong and allowing no local action between the cells. This results in an even voltage and permits a greater discharge by not allowing the battery to drop without warning. The batteries are exchangeable when discharged for fully-charged ones at a nominal cost similar to the principle used in gas tank exchanges. These batteries range in price from \$12 for 4-volt 40-ampere hour unit to \$44 for an 8-volt 120-ampere hour unit. The 4-volt 40-ampere hour battery is a new one and is built especially for motorboat ignition. It is composed of two cells, each having three standard size plates.

* * *

Samson Exhaust Silencer.

A silencer adapted for use with any gasoline motor has recently been placed upon the market by the Samson Manufacturing Co., of Detroit, which not only silences the exhaust of the motor but to a large extent utilizes the waste gases by condensing them and causing them to exhaust into a partial vacuum. The device is similar to a condenser upon a steam engine since it allows the hot burned gases to expand freely and provides a thorough contact and mixture with the water injected. The result is a quick condensation of the hot gases and steam, which causes a partial vacuum, thereby aiding in drawing out the on-coming exhaust gases. The sectional cut shows the operation of the silencer. The arrows show the direction of travel of the gases, the several deflecting plates breaking up their direct force. The bulk of them shoot through the center openings of the plates while the remainder pass through the outer rims and escape through these openings. Each center opening is made smaller in succession to the last one, which has no opening but the outer rim. A free and unretarded escape of gas is allowed because the sum of the opening areas at the center and rims of the deflecting plates is greater than the areas of the intake and outlet openings of the silencer, so there is no possibility of choking the gases. The water is piped into the silencer just before the gases enter and no drain is necessary because the exhaust is in such a position that all water must pass out through it. The price is from \$4.75 to \$8, according to the size required.

* * *

Paper Drinking Cups.

The John Manufacturing Company, of Springfield, O., have placed upon the market a style of paper drinking cup put up in convenient packages especially adapted for use upon motor boat cruises. A special package contains 25 cups nested compactly in a substantial round tube six inches long which is especially useful for camping and picnic parties. The use of these cups does away with the annoyance of carrying and cleansing glasses and metal cups and each of the party may be served with a fresh cup individually which is thrown away after use. The cups are made of white fiber paper paraffined, and are clean and sterile. Each cup holds six ounces and is about the size of an ordinary glass. The price of 100 cups in four tubes of 25 each is \$1.



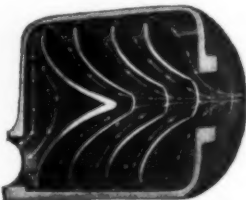
The Wilson port light screen.



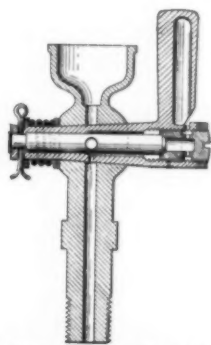
The Essex storage battery.



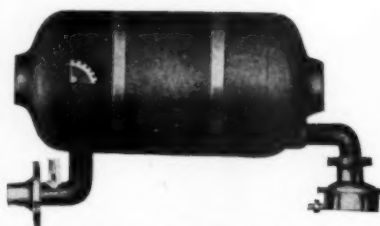
Exterior view of the Samson exhaust silencer.



Interior view of the Samson silencer.



The Sico Overheating Alarm.



The Universal Hydrocarbon Gas Producer.

Scott Tourist Package.

A most useful article is being manufactured to accompany the motor boatman upon cruises by the Scott Paper Company, 518 Glenwood Ave., Philadelphia, which is known as the Scott Tourist Package. This package furnishes the means of washing at any time, always providing a clean towel and wash rag, fine soap and a new comb. These articles are small enough to be easily carried in the pocket. Each packet contains six tissue towels, a wash cloth, toilet soap, a "Sani-Komb" and a packet of sani-tissue. 24 packets sell for \$2 or \$2.40 west of the Mississippi River.

* * *

Solderall.

A new kind of solder has just been devised and placed upon the market by the H. W. Johns-Manville Company, of 100 William St., New York City, which is put up in a collapsible tube and is very simple to use. No heating irons or acid are required and all that is necessary for the effective use of the solder is to scrape off the surface of the part to be repaired, squeeze out a small amount of the soldering paste upon it, and apply a candle, match or torch. When the paste becomes hot it fuses and solders in the same manner as the old style soldering stick. This article has been in use only a short time, but it has met with great approval on account of its convenience.

* * *

Sico Overheating Alarm.

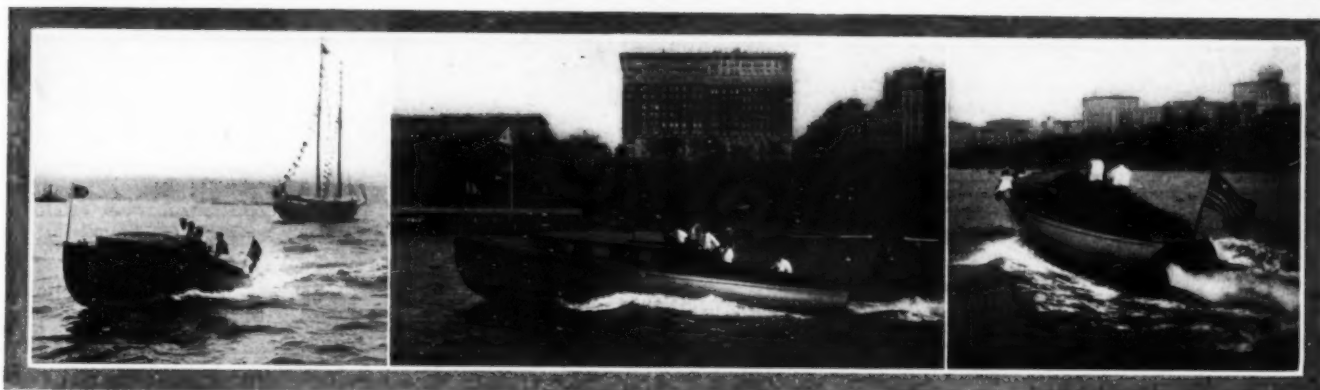
In view of the fact that many high grade motors have been ruined by being unintentionally overheated a number of times, the Shore Instrument & Manufacturing Company, of 555-557 West 22nd St., New York City, have recently perfected an instrument known as the Sico Overheating Alarm which consists of an ordinary pet cock which retains all the features of a valve and priming cup, but has added to it a thermostat. This instrument is placed inside of the conical valve spindle and a part of it extends into the handle which is an integral part thereof. A steel rod is securely fastened to the valve spindle and the usual spring and split pin is employed to keep the valve in proper engagement with its seat. A whistle is also provided in connection with the valve. The handle is normally set in a vertical position so that the valve is closed when the motor is running, but should the motor for any reason become heated beyond a certain temperature, the brass valve spindle will expand and elongate at a more rapid rate than the steel pin, thereby slightly opening the valve. The hot gases will thereupon enter a by-pass hole into the whistle, thereby giving warning of the overheating of the motor. A plug can be arranged so as to give the warning at any desired temperature, and the whistling may be stopped when desired by opening the handle a trifle, thereby closing the by-pass hole. The price of the device is \$2.

* * *

Universal Hydrocarbon Gas Producer.

To offset the disadvantages of the lower grades of gasoline that are now being placed upon the market, the Universal Oil Converter Co., 227 Borden Ave., Long Island City, N. Y., have perfected a device known as the Universal Hydrocarbon Gas Producer with which it is possible to run any gasoline motor of standard make upon kerosene with no great consumption of fuel and no decrease in horse power. The producer is cylindrical in shape, about five inches in diameter, its length varying in accordance with the power of the motor. It is attached in the same manner as a muffler. The device is a suction gas producer, the fuel being first atomized and then drawn by the suction of the motor through passages heated by the exhaust, thus making the operation automatic and suiting the requirements of the engine under all conditions of speed and load. It is equally efficient in converting kerosene or denatured alcohol into the proper gas for any type of motor and is very economical in its operation. There is no moving part and when installed it needs absolutely no attention. The price ranges from \$30 for a converter suited to a 2½ to 5 h.p. motor to \$200 for one suited to a 76 to 100 h.p. motor.

MORE NEW MOTOR BOATS.



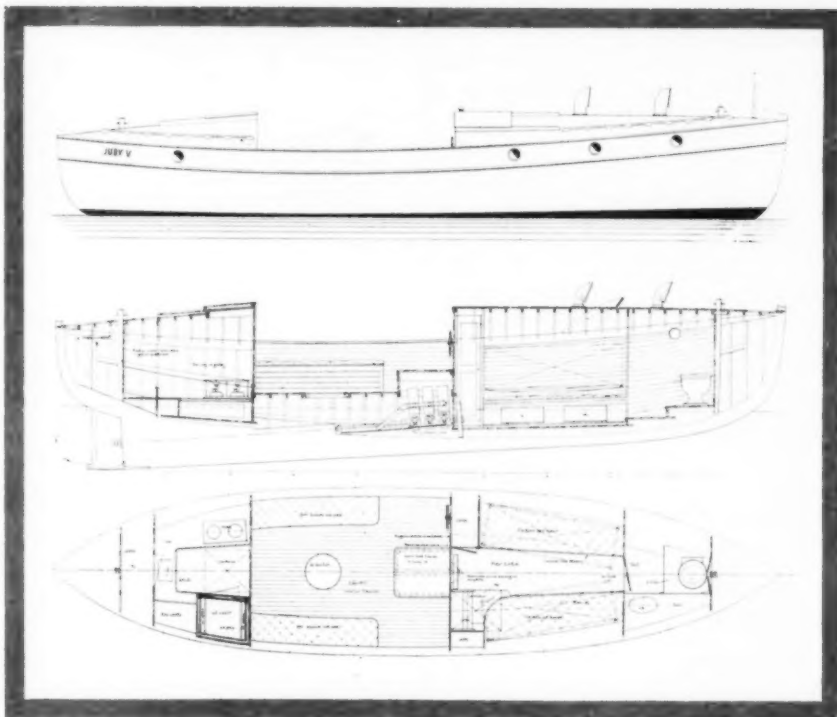
Kitsix, designed by Morris M. Whitaker, for Frank D. Gheen, of the New York Motor Boat Club. She was built by Alex. Simpson and is to enter the Marblehead Race.

Kitsix.

KITSIX, the sixth of a line of Kits owned by Frank D. Gheen, of the New York Motor Boat Club, was recently launched at Alex. Simpson's Boat House on the Hudson River.

She was designed, as was her predecessor Kitcinque, by Morris M. Whitaker, of New York City, but is only 32 ft. 6 in. over-all, somewhat shorter than the former boat. She has 6 ft. 6 in. beam, and is equipped with a 4-cylinder 2-cycle Watertown motor, of 5½ in. bore and 5 in. stroke.

It will be remembered that Kitcinque caught fire and sank during the Marblehead Race two years ago. At the time of the accident she was well in the lead, and would probably have won the race even on corrected time.



Profiles and plan of Judy V, a seaworthy whaleboat type.

Judy V.

JUDY V is a trim whaleboat cruiser designed by B. B. Crowninshield for William Wallace, of Boston. She is 34 ft. 6 in. over-all, 31 ft. 6 in. on the water line, 8 ft. extreme beam, 7 ft. 4 in. water line beam, with 3 ft. draft and 3 ft. freeboard. She is propelled by a 4-cylinder Sterling motor of 35 h.p., and was built by James E. Graves, of Marblehead.

She was designed for shooting and fishing trips and for outside cruising and will comfortably accommodate four persons. The layout below includes a toilet compartment forward, and a cabin with transoms on either side, above which are pipe berths. The motor is installed under a raised platform in the cockpit. The galley is aft.

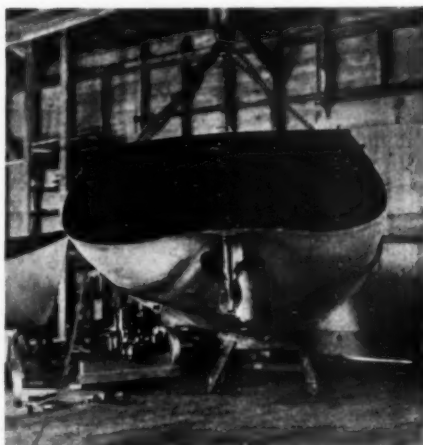


Judy V was designed by B. B. Crowninshield for Mr. William Wallace, of Boston.

A Tunnel-Stern Motor Boat.

THE photograph to the right shows the interesting tunnel construction of a 20-foot shallow draft launch built by the Gile Boat & Engine Co., of Ludington, Mich. She is 20 feet over-all by 60 inches beam and draws but 12 inches of water. The motor is a 10 h.p., 2-cylinder reversing Gile, turning a three-bladed wheel which, as seen in the illustration, is protected by a skeg and does not extend below the keel. The launch makes 10 miles an hour and is able to go wherever there is 12 inches of water.

The boat is broad, and she should be able to carry quite a load without materially increasing her draft, and she will prove a thoroughly practical boat for navigating shallow streams and places where the propeller of an ordinary boat would be put out of business; in other words, "where the bottom comes too near the top."



The tunnel construction of the Gile 20-footer thoroughly protects the propeller in shallow water.

Houqua's 14-foot Motor Tender.

AS an interesting example of the small motor tender, the illustration below shows one of the boats carried by Houqua previously illustrated and described on pages 16 and 16a. The tender is 14 feet over-all and is equipped with a 6 h.p. 2-cylinder light-weight motor, which can be seen from the photographs.

Several features of the boat are noteworthy, for instance, her great carrying capacity, obtained by flaring the bow and carrying the fullness of the body well aft. While this gives a rather bluff appearance forward, the flare is above the water line, in no way impairing the driving qualities of the boat, and making her very buoyant in the sea. She is planked on the lap strake system usually employed in this class of craft and is finished bright both inside and out presenting a very handsome appearance.



Houqua's 14-foot motor tender is an interesting example of the development of this class of craft.

June Bug, a Fast Scow Hydroplane.

JUNE BUG is a scow-shaped hydroplane designed by Sidney and Robert Breese, New York City, who have spent much time during the last few years in experimenting with and developing a type of hydroplanes similar to one which is better known in Europe. In fact, it may be said that June Bug was inspired by some of the foreign boats seen by the designers on the other side of the Atlantic.

The photographs were taken recently on Gravesend Bay and it is said that at this time they succeeded in driving the 14-footer 30 miles an hour. The decks of the fleet of pleasure craft moored off the Atlantic Yacht Club were crowded with yachtsmen and crews applauding Mr. Breese as he skillfully drove the little hydroplane about the crowded bay at full speed. At every revolution June Bug seemed to gain in speed and the performance was of a nature seldom seen on Gravesend Bay.

The boat has 40 inches of beam and is therefore sta-



June Bug, during her trial trip on Gravesend Bay, at which time it is claimed she made 30 miles an hour.

ble enough, although her form is not one to be altogether comfortable in rough water. From the way in which she took the turns at difficult angles she is apparently very easy to handle.

The longshoremen were frank in their astonishment and admiration of this remarkable little boat, and the entire neighborhood and its population of water-wise skippers were enthusiastic over her performance.

The motor is installed forward under a turtle hatch over the coaming, and drives the single propeller through direct shafting. The after part of the cockpit is available for seating space, and is large enough to accommodate two persons, although the boat is easily controlled and steered by one person.

Mr. Oliver Iselin has purchased June Bug and taken her to New London, where she made her first appearance at the time of the Harvard-Yale Boat Race on June 30th.

A 25-Footer Cruiser.

THE new stock model cruiser of the West Mystic plant of the National Boat & Engine Co. is shown to the right. The model is the result of careful experiment on the quiet waters of the Mystic River and the rough water of West Race.

The principal dimensions are: Length over-all, 25 ft.; beam, 8 ft.; freeboard at bow, 4 ft. 6 in.; least freeboard, 2 ft. 4 in.; draft, 2 ft. 8 in. The liberal beam and freeboard and the unusual draft for so small a boat all make for roominess and general efficiency.

The interior arrangement is very simple. Forward and separated from the main cabin by a bulkhead is a space for the storage of anchors, lights, cables, etc. Then comes the main cabin with berths along either side which are long enough to accommodate two persons each, so that



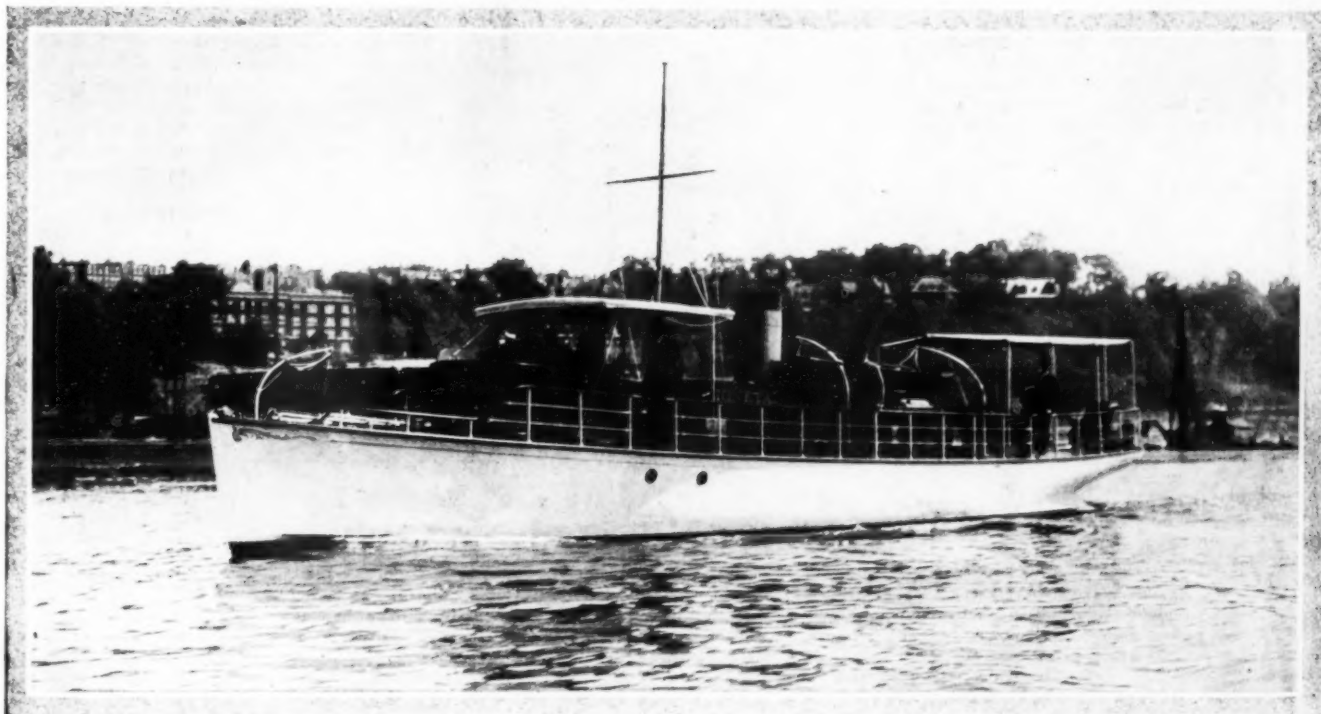
The West Mystic 25-footer, at nine miles an hour.

Ioneta, a 65-Footer

ANOTHER new motor yacht recently launched by the Gas Engine & Power Co. & Charles L. Seabury & Co., Cons., at Morris Heights, is the twin screw 65-footer for Rear-Commodore A. B. Waring, of the Moosehead Lake Yacht Club.

The boat is 65 ft. long by 10 ft. beam, and in appearance resembles a small steam yacht, having a flat or torpedo stern below the water line, with the graceful overhang above, in conformity with the regular Seabury high speed yacht practice.

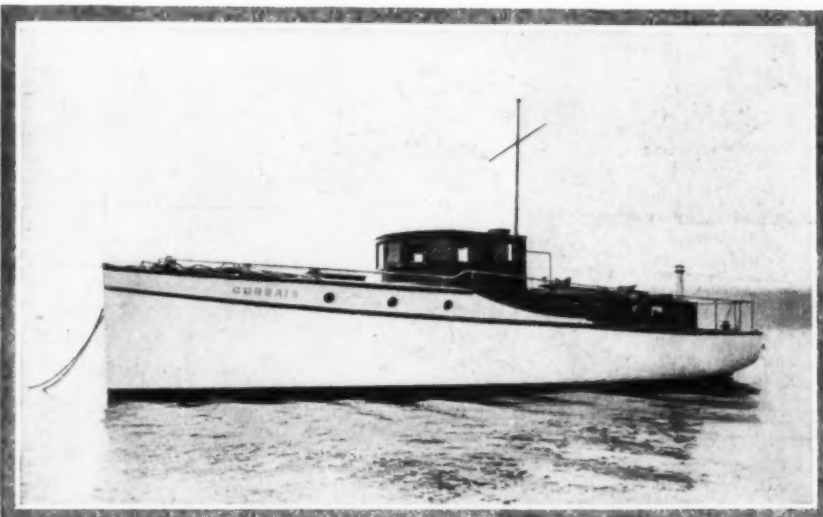
There is a cabin house forward just aft of which is the flush bridge deck where the steering wheel, marine telegraphs and controls are located. In the after trunk cabin there are a large saloon, toilet-room and a galley. The deck throughout the entire length of the boat is flush and easy communica-



Ioneta, Rear Commodore A. B. Waring's Seabury 65-footer, was designed for use on Moosehead Lake, Maine.

this compartment may be divided by curtains and will comfortably accommodate four persons. The companionway is on the starboard side, and there is ample space for dish racks and galley equipment in the after part of the cabin. The seat extending across the after end of the cockpit and part way forward on either side, will comfortably seat quite a number of people. The steering wheel is mounted on the port side of the bulkhead, and the steering platform is arranged to allow the helmsman a clear view in all directions.

The motor is installed in the cockpit just aft the bulkhead, and is covered by a housing with removable top.

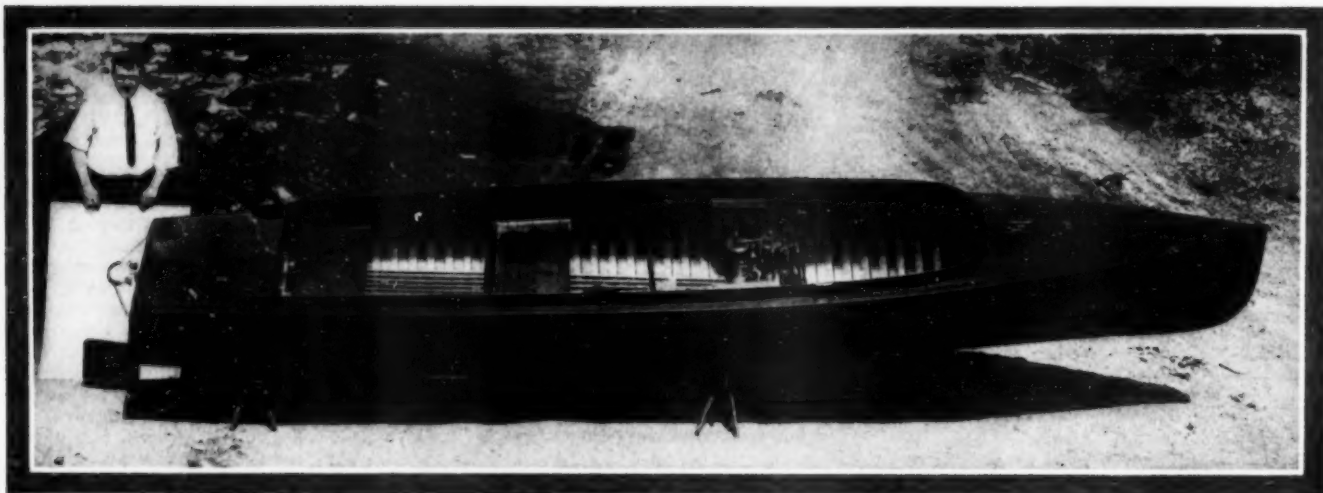


Corsair, described on page 9 of this issue.

tion is had between the forward and after decks and the bridge deck by the runways on either side of the house and cabin-trunk.

Two 6-cylinder, 6 in. by 6 in. Speedway engines are installed beneath the bridge deck a little forward of amidships, and drive Ioneta at 18¾ miles an hour, 2¾ miles in excess of her guaranteed speed. She is lighted throughout by electricity, and will carry a powerful searchlight. The finish above deck and within is in mahogany.

A signal mast is shipped just aft the bridge deck, and a ventilating stack surmounts the trunk-cabin, on which the tender is carried.



A 20-foot speed canoe built and powered by the Waterman Marine Motor Co.

A 20-Foot Power Canoe.

SINCE the first conversion of the canoe to power, many developments have been made in this type of craft, until some of the more recent models have lost practically all of the earmarks of the original. It was found that the orthodox canoe model, while easily driven, squatted badly because of her very fine after body, and in order to obtain greater speed than was possible with the old form, the speed boat model is now being employed, still retaining, however, the canoe construction.

A boat of this type is shown above. She is a 20-foot speedster, designed and built by the Waterman Marine Motor Co. and powered with a two-cylinder motor built by the same concern. It will be seen from the photograph that the construction is that of the canoe, the planking being covered with canvas.



Coach Ward's Motor Catamaran.

Coach Ward's Catamaran.

COACH ELLIS WARD, of the University of Pennsylvania, has had built recently a motor boat according to his own ideas. The boat is of the catamaran type, being composed of two very fine hulls upon which is supported a platform carrying the motor, and between which the propeller acts. It is said that the craft is capable of a speed of 25 miles an hour and that at this speed the bows leave the water at an angle of 20 degrees.

Mr. Ward will use the new boat for coaching the Pennsylvania crew on the Schuylkill River and he claims that with it he can approach much nearer to the shells than was possible with the old launch Ben Franklin, as the new boat creates practically no wash.

The boat is an interesting embodiment of Mr. Ward's originality.

Crossing the Atlantic in a 25-Footer.

Something About Seabird, the 25-Foot Auxiliary Yawl Now on Her Way to Rome.

A Boat That Proves That Seaworthiness is Not a Matter of Size.

WHEN yachtsmen like Thomas Fleming Day, Fred B. Thurber and Theodore R. Goodwin are willing to start across the Atlantic in a 25-foot yawl, it does much to establish the little appreciated truth that the size of the boat has very little to do with its seaworthiness. These men are all thoroughly experienced yachtsmen and there is nothing of bravado in their undertaking. They believe in Seabird, the little 25-foot yawl that Mr. Day has sailed a number of years, and they know that such a trip at this time of the year is thoroughly practical.

Seabird was the result of the ideas of her owner and the skill of Charles E. Mower, the naval architect, and was built by Larry Huntington, at New Rochelle. She is not a formidable looking craft, with her skip jack underbody, low freeboard, and small trunk-cabin, and we should say that she is rather too small for comfort, but she has proved her ability beyond the shadow of a doubt in many an ocean contest.

Seabird's dimensions are as follows: Length overall, 25 ft.; extreme beam, 8 ft. 4 in.; draft, 3 ft. 8 in.; area of sails, 400 square feet. She is equipped with

a 3 h.p. Knox motor with kerosene attachment, and a propeller of the Columbia type. Three 10-gallon tanks of fresh water are carried with provisions for ninety days, and her equipment includes three compasses, one 7-inch spirit, one 5-inch oil, and a smaller one for the tender. A small supply of gasoline and thirty-eight gallons of kerosene are carried in three steel tanks, but of course, this

supply of fuel will only permit of the engine being used occasionally during adverse winds or emergencies.

Mr. Day and his crew left Providence, R. I., on June the 11th for Rome, via the Azores. The first stage of the journey to Fayal is 2,300 nautical or 2,645 statute miles, and that from Fayal past Gibraltar to Rome is 1,035 statute miles. It is expected that the trip will take in the neighborhood of forty days.

The boat was provisioned for three months so that in the event of her being driven off her course or disabled there will be no danger from a shortage of food or water.

Collector George W. Gardiner, of the Port of Providence, to avoid foreign complications, gave the mariners a clean bill of health, and a certificate setting forth the identity of the vessel, so that there will be no delay at the other side in passing upon her credentials.

From Sardinia Seabird will be escorted by an Italian battleship to Rome, from which point she will go up the Tiber to attend a reception at which it is expected the King of Italy will be present.



Seabird, the 25-foot auxiliary yawl, now on her way across the Atlantic.

Motors for Motor Boats.

The Lacy Marine Motor.

One of the latest types of motor made by the J. C. Shadegg Engine Co., 315 Third St., So., is that known as the Lacy, which is made in both two and four-cycle models. The general design is carried out with the idea of concentrating so far as possible all the parts to secure compactness. Levers for operating both the motor and the reversing mechanism are self-contained and in installing the motor the only machine work necessary is the cutting off of the shaft to the correct length to fit it to the coupling. The cylinders are of close gray iron and the crank shafts are forged from mild steel, specially machined. The bearings are of phosphor bronze and each part is made to jigs and templates or gauges so that repair parts can be easily secured. A special vaporizer is provided, but the motors will be equipped with Schebler carbureters when desired.

The jump spark system of ignition is used upon both the two- and the four-cycle type. The commutator is simple, requiring no adjustments, and is placed high upon the motor where it is free from dampness. A wide range of speed is provided by controlling the ignition timing, and since the commutator and reverse levers are placed side by side the power plant can be easily handled upon any boat.

Water circulation is furnished by a single plunger pump, the overflow being carried to the exhaust pipe through cored passages in the cylinder jacket. This water serves therefore to keep the exhaust pipe cooled throughout its entire length and there is no necessity for asbestos covering.

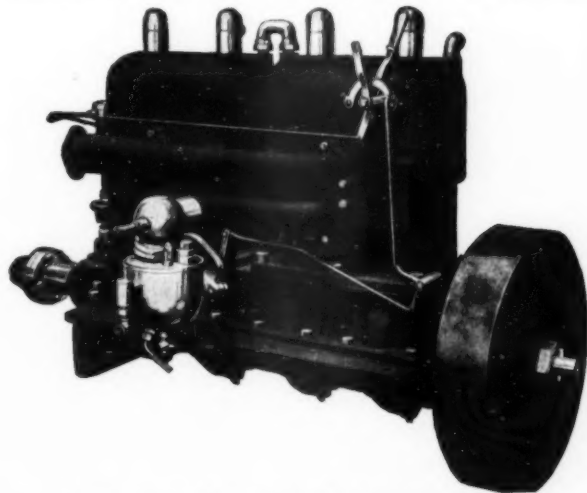
An efficient form of propeller wheel is used, having on the forward lead the same form as a solid wheel and will give the same excellent results with the added feature of allowing possible adjustment of pitch to suit conditions.

Upon the four-cycle type a clutch is used instead of the reversing propeller and a carbureter is furnished in place of the vaporizer. The two-cycle motors are made in 1½, 3, 5, 6 and 10 h.p., and the prices range from \$80 to \$400, according to size and equipment. The four-cycle motor is made in 15, 20, 30 and 40 h.p. sizes and costs from \$750 to \$2,000.

The Eclipse Special.

The Eclipse Special is a 2-stroke engine and was formerly built at Mancelona, Mich., by The Eclipse Motor Co., but the works have lately been removed to Traverse City, Mich., where it is expected that the business will be very materially increased. These motors have been on the market for ten years, and are built in the following sizes: 1 h.p. for canoes, rowboat, launches, and yacht tenders; 2½, 3½, 4½, 5, 8 and 10 h.p., both single and double-cylinder. Mr. Brownlow Starbuck, the well known gas engine expert, is the designer.

The motor is a light-weight, high-speed engine, being particularly adapted to speed and semi-speed boats as well as to family boats.



A four-cylinder heavy-duty Lackawanna of 30 h. p.

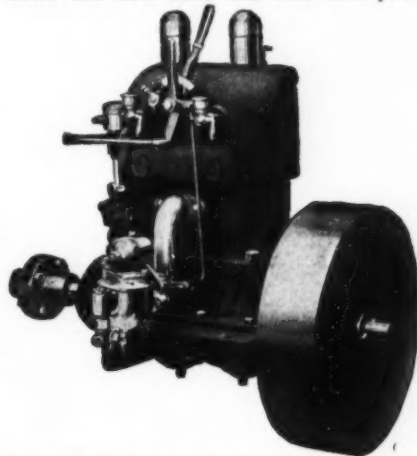
It was formerly built on the 3-port, or valveless type, but the builders went back to the 2-port type about five years ago.

The distinguishing features of the Eclipse Special are: Large port-area, accessibility, Vanadium steel connecting rods, interchangeable die-cast bearings of nickel babbitt and the ring-oiler system of lubrication; one 5-feed oiler taking care of all working parts. The motors are equipped with float-feed carbureter, all trimmings being of polished brass.

This marine power plant is designed to meet the demand for a simple, powerful, light and reliable engine and the company have agencies in Sweden, British Columbia, Japan, Australia and New Zealand.

The Lackawanna Heavy Duty.

The 1911 model of the Lackawanna motor, made by the Lackawanna Manufacturing Company, of Newburg, N. Y., in the heavy duty type, is intended for roomy cruising yachts, fishing, freight and towing boats where a stronger and more durable type than ordinary is required. This company, since first manufacturing motors, in 1898, have given attention to the construction of a valveless motor and have since that time built prac-



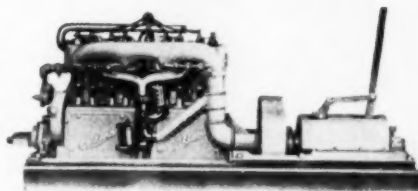
A two-cylinder, 15 h. p. Lackawanna for heavy duty.

tically the same motor with no added complications. The heavy duty type represented in the accompanying illustrations by the double-cylinder 15 h.p. and the four-cylinder 30 h.p. also includes a triple-cylinder 22 h.p. motor and a 6-cylinder 45 h.p.

The motors are provided with cast on and separable new water-cooled exhaust manifolds, Hydrex silencer, Schebler carbureter, a new automatic gasoline oil lubricating system, Lackawanna reversible and control levers, and optional plunger or gear pump.

The built-in reverse gear with which Lackawanna motors may be fitted furnishes a perfectly rigid support for this important part of the mechanism. It is mounted on a stiff flange casting or pan rigidly bolted to the motor base and always in alignment with the motor shaft. The gear consists of a tight circular casing containing gears and a friction clutch combined, running in heavy non-fluid oil.

These motors are fitted with Perfex or Orswell systems of ignition and for uniform speed and continuous service they are particularly well adapted to heavy work in boats up to 70 feet in length and 20 feet beam. The controls are located where they may be easily handled, so that one man can without difficulty operate a boat equipped with this motor.



A four cylinder Oakland with reverse gear.

The Oakland 20-32.

The Oakland motor, made by the Wilpen Company, of Detroit, Mich., is known as a 20-32 for the reason, as its manufacturers state, that at from 720 to 750 r.p.m. it develops 20 h.p. on a brake test. This is a moderate speed and represents a piston travel of about 600 feet per minute. At 900 to 1,000 r.p.m., or at a piston speed of 750 to 800 feet per minute, which may be termed high speed, the horse power is from 25 to 27, and at 1,100 to 1,200 r.p.m., known as racing speed, and at which point the motor can be run for long periods, the horse power is increased to 32. This motor is the same bore and stroke as the Oakland 40 h.p., which develops its power at 1,500 r.p.m. The slower speed is recommended for working and cruising boats, and for semi-speed and racing boats the type of motor depends upon the speed desired.

This motor is of the four-cylinder, four-cycle, vertical type, with cylinders cast in pairs with water jackets and valve chambers integral. The cylinder heads are removable and are fitted to a ground seat so they are absolutely tight. The exhaust and intake valves are on the same side and are interchangeable, the valves being conical, of a special gray iron with valve stems of nickel steel. The pistons have three eccentric rings and are provided with oil grooves.

The connecting rods are of the hinged type, permitting an accurate adjustment by the turning of but one nut. The upper bearings are of hardened bronze and the lower of babbitt metal. The crank shaft is drop-forged, of heat-treated alloy steel, and helical gears are used in order to make the motor as smooth-running as possible.

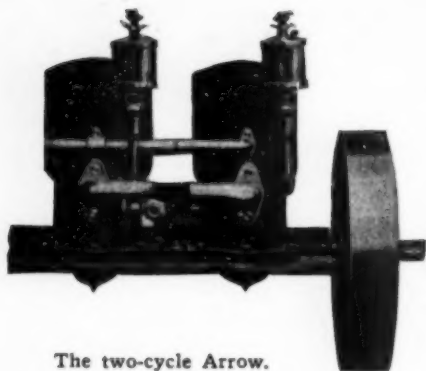
The lubrication is by the splash system, the oil being supplied from a two-gallon reservoir of aluminum which is integral with the crank case and located on the right-hand side. An oil pump driven from the engine shaft delivers the oil through a sight feed to the front bearing and from there to the crank case compartment. The amount of oil can be regulated by a set screw next to the sight feed.

The crank case is divided into pits or compartments by low walls and provision is made to prevent the oil from accumulating at any one point. A system of oil grooves is cast into the walls of the crank case compartments so that when the oil is splashed against the walls it is carried on into the next compartment in front and finally to the rear case again through a return pipe.

The ignition is by the jump spark system, the current being obtained from a Splitdorf high tension magneto mounted on the right side of the motor. Dry cells in multiple are provided for starting the motor, although the magneto may be used.

The carbureter is provided with an improved type of auxiliary air valve and has but one part that needs adjustment. The equipment of the motor includes reverse gear, bronze propeller wheel, stern bearing and stuffing box, steel propeller shaft, Splitdorf magneto, Columbia dry cells in waterproof case, two sets of spark plugs, muffler, tools and oilers, and the motor complete is listed at \$750.

The compactness of the motor can be seen from the illustration above. The fly-wheel is placed in the rear between the cylinder and the reverse gear, and there are no moving parts projecting beyond the base. The intake and the exhaust are located upon the same side of the motor, leaving the starboard side free, so that the motor is especially fitted to be installed in an open boat.



The two-cycle Arrow.

The Two-Cycle Arrow.

Arrow motors are made by the Arrow Engine Works, of Detroit, and range in size from the single-cylinder Junior developing up to $1\frac{1}{2}$ h. p. to the three-cylinder, 25 h. p. motor. The smaller motor is designed to be used with equal efficiency upon gasoline, kerosene, alcohol, benzene, turpentine, naphtha or distillate, a new type of float feed carbureter easily vaporizing all these fuels.

The price of the Junior engine, which will speed up to 1,500 r.p.m. and will drive a canoe or 16-foot boat at good speed, with full equipment including propeller, 5-foot shaft, rear starter, under-water exhaust fitting, ignition system, spark plug, timer, spark coil, battery, wire, etc., float feed carbureter, ball thrust, stuffing box, etc., is \$25. The fly-wheel is placed at the rear and there are no moving parts at the front of the engine.

Installation of these motors is very simple since the bed flanges are flat and lend themselves naturally to the shape of the bed, rendering specially carved bed timbers unnecessary. The motors are two-cycle, cylinders, rings and pistons being cast from fine-grained chrome iron, with crank shafts and connecting rods of solid steel. All bearings are bushed with high-grade bearing metal.

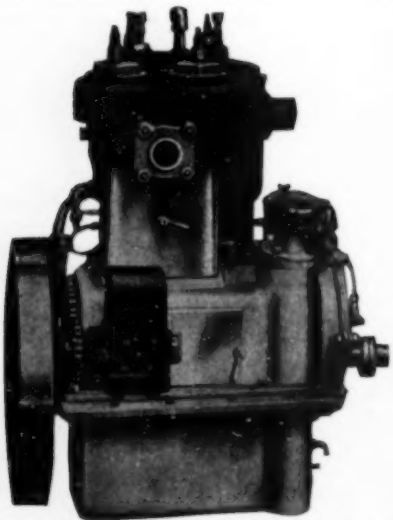
The particular feature of these motors is the fact that they run steadily at any speed and start easily in cold or hot weather. They set low in the boat and take up but little room, the single cylinder Junior type occupying less space than a small bucket.

The Bicknell Motor.

The Bicknell motor shown upon this page is made by the Bicknell Manufacturing and Supply Company, Janesville, Wis., and is of the two-cycle type, developing four horse power, made in both one and two units.

The cylinders are cast separately and the cylinder heads are removable, the base being split to insure ease in making any necessary repairs. The bore is $2\frac{1}{2}$ inches and the stroke is $3\frac{1}{2}$ inches. The crank pin bearings are bronze bushed and the crank shaft bearing at the center is of genuine babbitt, the end bearings being of bronze and removable.

The cooling system consists of a brass



Port side of the four-cycle Alpha motor.

plunger pump and brass water pipe to the jackets with special union fittings. Ball check valves are used and the cooling system is arranged with an outlet to connect with the exhaust manifold or pipe in any direction outside of the boat. If desired, an exhaust manifold may be furnished with a water chamber the full length and a return pipe connected, or a center discharge pattern. Exhaust manifolds are threaded on the outside, thus increasing the size of the outlet connections.

The illustration shows the carbureter on the exhaust side, thus giving clear room upon the opposite side to pass by the motor. The motor may also be made with the carbureter upon the opposite side from the exhaust or with all fixtures upon the opposite side to meet with conditions upon the boat in which it is to be installed.

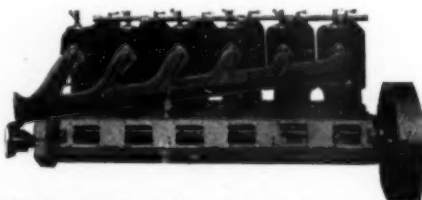
All intake manifolds for carbureter connection are machined on the inside, thus producing a clean surface for the mixture to travel through. Carbureter check valves are of a special make and lubrication is cared for through the gasoline supply, eliminating oil cups except for the grease cups on the crank shaft bearings.

The ignition is by means of batteries and a duplex coil or a magneto, as desired. The normal speed is from 700 to 800 r.p.m. and the equipment includes a muffler.

Thelma Speed Engine.

Thelma motors are made by the Thelma Motor Works, of Detroit, in two sizes of four and six cylinders and are designed especially for speed work. In addition to these regular sizes they are made on order with eight and ten cylinders developing 50 to 60 horse power.

These motors are designed particularly for speed boats where the construction is light and it is desirable to have the weight of the motor set low and equal in its distribution. The cyl-



Exhaust side of the six-cylinder Thelma.

inders are made of gray iron, cast singly, and have a bore of $5\frac{1}{2}$ inches and a stroke of $5\frac{1}{2}$ inches. The ports are large, permitting a free admission and exhaust of the gases and the water jackets have liberal dimensions.

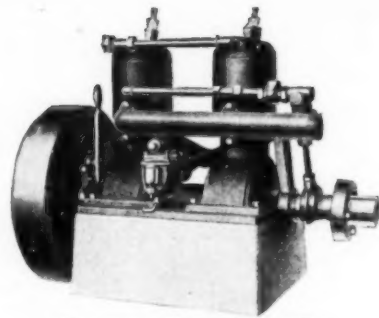
The crank shaft of the Thelma motor is made of forged nickel steel and the journals are made of motor nickel babbitt with interchangeable bearings. They are two inches all through and the crank shaft, with this construction, is strong and serviceable. The connecting rods are of manganese bronze with babbitt metal interchangeable bearings and bronze bushing on the piston pins.

The gears are all cut and made of cast gray iron except the crank shaft gear, which is made of steel. The cams are fastened to the cam shaft and are made of tool steel. The intake pipes are built of aluminum and are water-jacketed to prevent freezing. The weight of the four cylinder motor is 600 pounds and of the six-cylinder, 800 pounds. The prices, with complete equipment, including Gies reverse gear, magneto, carbureter, oiler, plugs and wiring, are \$815.63 for the four-cylinder type and \$1,417.50 for the six-cylinder type.

Alpha Motors.

These motors are made by the Alpha Motor & Foundry Company, of Detroit, in both the two and four cycle type, an illustration of each being shown upon this page. The two-cycle type is known as model D and is made in models with one and two cylinders, the single-cylinder type developing $3\frac{1}{2}$ to 5 h. p. and the double-cylinder type developing 7 to 10 h. p.

The cylinders are cast separately and are well water-jacketed, the barrels being entirely surrounded by water. The cylinder head is cast separately from the cylinder and is thoroughly water-jacketed. It is held in place by six $\frac{3}{8}$ -inch bolts. The cylinders are made from gray iron and the walls are left of sufficient thick-



The two-cylinder Bicknell.

ness to permit reboring if necessary after years of service.

The pistons are of special gray iron to obtain lightness and strength and are fitted with two rings at the top and two at the bottom, confining the gases to their separate chambers. The piston is hollow, of steel, hardened and ground. The connecting rods are of steel and the upper end is bushed with phosphor bronze. The lower end has reinforced babbitt bushings.

The crank shafts are of hammer-forged steel, heat treated, and the crank cases are of cast iron, the upper half being integral with the cylinders. An inspection plate of ample size is provided which is readily removed. The cooling system is similar to that used with the four-cycle motor.

The normal running speed is from 900 to 1,000 r.p.m. though speeds of 1,500 r.p.m. are easily obtained. The motor can be fitted to operate upon kerosene or gasoline, when the former is used it being only necessary to warm the motor by starting upon gasoline, when the kerosene is turned into the carbureter by means of a three-way cock.

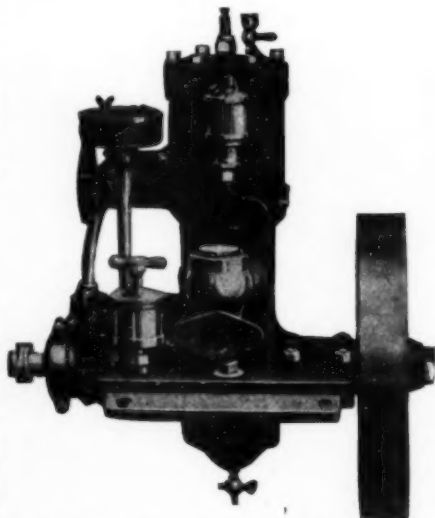
The four-cycle motors are known as models G and H and are designed with a long stroke and large valves. The two-cylinder design develops 12-15 b. h. p. and has a bore of 4 inches and a stroke of 6 inches. The cylinders are cast in pairs, with valves on opposite sides, the T-head type of cylinder allowing for more efficient valve timing and cylinder scavenging.

The pistons are fitted with five rings, four at the top and one at the bottom. The valve stems are made of mild steel forgings, accurately ground, and the large diameter permits the easy passing of the gases with a minimum wear and noise in operation. The springs are of a fine quality of steel, oil hardened.

In model G high-speed motors the crank cases are of aluminum to largely reduce the weight, and in model H, which is intended for cruisers and heavy-duty boats, the crank cases are of fine gray iron. They are fitted with large size hand holes to permit inspection.

In the water cooling system the cold water enters via the exhaust manifold jacket thence into the bottom of the cylinder water jacket, thus becoming warmed, and with the water pump pressure it gradually rises to the top of the combustion chamber where it is discharged.

Without extra cost a satisfactory attachment is furnished when desired to permit the use of kerosene as a fuel.



Starboard side of the two-cycle Alpha motor.

YARD AND SHOP.



Natoma, at 30 miles per hour. See description in this department.

Kenyon Cushions as Life Preservers.

The R. L. Kenyon Company, of Waukesha, Wis., manufacturers of the Kenyon Life Preserving Cushion and Kenyon motorboat top, after efforts covering a considerable period of years, have succeeded in convincing the Government of the efficiency of the Kenyon cushion as a life preserver, and motor boat enthusiasts will be pleased to learn that the decision of the Supervising Inspector General will hereafter allow motor boats to carry these cushions instead of regular life preservers. The official's order allows the Kenyon cushions to be stamped as filled with Prime Java Kapok, and under this ruling each cushion must stand a buoyancy test of 25 times the net weight of the Kapok contained therein and this net weight must be stamped indelibly upon the cushion. All inspectors and deputy inspectors throughout the country will by this time have received a copy of the official ruling and boats equipped with these cushions will no longer be required to carry additional life preservers.

Large Order for Hydrex Silencers.

What is said to be one of the largest single orders for silencers has just been placed with the Hydrex Silent Exhaust Works, by the Lackawanna Mfg. Co., of Newburg, makers of the Lackawanna two-cycle motor. The construction of the Hydrex differs materially from the ordinary type of silencer and hereafter every Lackawanna motor manufactured will be supplied with this device.

"Auto Craft" on Lake Sunapee.

George P. Taylor, of Blodgett's Landing, Lake Sunapee, N. H., announces that he has decided to purchase a number of Auto Craft boats, made by the Cleveland Auto Boat Mfg.

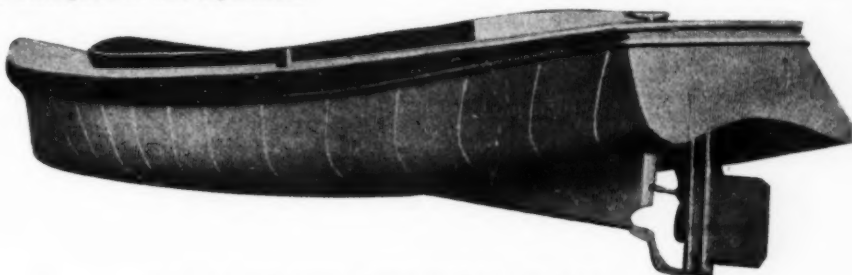
Co. Mr. Taylor has a carload of the boats on exhibition at his pier and in addition to the business will take over the agency for the Auto Craft boat and Ferro engine.

New Mullins Agencies.

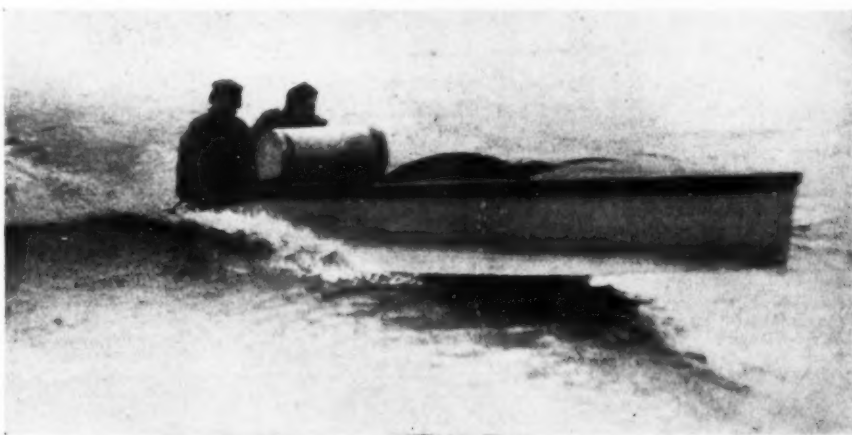
In accordance with their established policy of making the purchase of a Mullins boat a simple matter the W. H. Mullins Company, of Salem, O., have added to their list of agencies by placing the sale of their boats in Minneapolis in the hands of the Shadegg Engine Company, 315 Third St., South. An agency has been added in Cincinnati also, where Mullins boats will be carried by the Motor Boat & Auto Supply Co., 311 Main St. L. E. Bedinger, one of the most prominent boatmen in Cincinnati, is manager of the company.

Standard Oil Stations.

The Standard Oil Company of New York have published their 1911 list of gasoline supply stations in New York State and the New



A semi-tunnel stern Ripple steel boat built on speed lines.



"Foxy Quiller." See page 24 and item on following page.



The New York branch of the Michigan Wheel Company at Broadway and Dey Street.

England States and a number of new stations appear in several sections where motor boating has become popular. On the St. Lawrence River a special arrangement is made whereby, in addition to the several barges at important ports, summer homes are supplied by Standard Oil launches making regular trips through the Thousand Islands.

Coleman Liquid Copper.

Coleman's Liquid Copper, made by the Coleman Liquid Copper Company, 15 William St., New York City, is designed to prevent the growth of barnacles and marine plants upon the bottom of vessels. This is put up in three colors, red copper, copper green and yellow metal. It may be applied on wood hulls over any firm coat of lead or other paint with the exception of asphaltum, whether priming or otherwise, and the boat is ready for launching as soon as the coating sets.

A New Miniature Lamp Company.

The Federal Miniature Lamp Company, of Cleveland, Ohio, has just been formed to relieve the somewhat unsatisfactory condition that has prevailed in the miniature lamp market through the introduction and immediate popularity of simple and efficient electric lighting systems. Many miniature lamps are used with these systems and it is sometimes difficult to obtain just the size and style of lamp wanted. The new company is organized with Wal-



The pilot of Rowdy. See paragraph.

ter R. Armstrong as its president and general manager and an affiliation of practical men in the lamp industry. * * *

"Natoma."

The boat shown in an illustration in this department is owned by Clifford V. Herbert and was launched a short time ago at Marblehead, Mass. On her second trial trip, with a wheel designed for another boat, she attained a speed of 29 miles per hour and the next day, with her own wheel, she did 30.38 m. p. h. The boat is 39 feet, 11 inches long, with 5½ feet beam and is equipped with a 90 h. p. high speed Buffalo motor. The hull was designed and built by Stearns & McKay, of Marblehead. * * *

A New Motor Boat Supply House.

A new shop carrying a full line of motor boat supplies and gasoline has been opened at Elk River, Maryland, known as the Town Paint Mart. G. W. Bakeover is the manager. * * *

Fast Boats on the Detroit River.

Alfred Robinson, of Detroit, the designer of

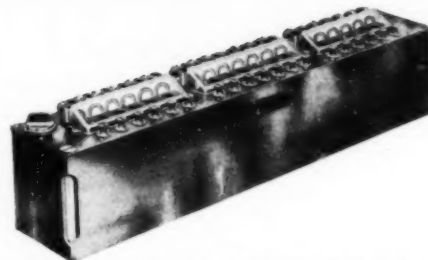
the Thelma motor, takes pride in three Detroit river boats which are said to be the fastest fresh water boats of their size and horse power. These craft are Thelma I, 4-cylinder, 35 h. p., speed 25 m. p. h.; Thelma II, 1. o. a., 32 feet, 6-cylinder, 70 h. p., speed 30 m. p. h., and Echo, 1. o. a., 32 feet 4-cylinder, 35 h. p., speed 27 m. p. h. * * *

Ripley Steel Boats.

The cut shown on page 57 shows a semi-tunnel speed boat, 30 feet long with a five foot beam, built by the Ripley Steel Boat Company, of Grafton, Ill. The semi-tunnel form makes this boat of very light draft and it can easily make, with the proper power, 25 to 30 miles per hour. * * *

Bennett Carburetor.

The Wilcox-Bennett Carburetor Co., Minneapolis, have just issued a carburetor booklet describing and showing the action of the Bennett carburetors. They are made in six sizes ranging from \$10 to \$35 in price. * * *



One of the newest types of lubricators made by the Detroit Lubricator Company.

shown in the photograph on page 57 and with the use of a 24 h. p. Dean motor have made a speed of 26.7 m. p. h., which is very fast for a 20-foot boat. The bottom of the boat is dressed down to ¼-inch thickness and when going at full speed two-thirds of the length is out of the water. * * *

A Graflex Camera with Unifocal Lens.

Herbert & Huesgen, 311 Madison Ave., New York City, are at present featuring a special camera outfit consisting of a No. 3A Graflex camera with a Steinheil Unifocal lens which is particularly adapted to speed pictures upon the water where it is difficult to hold the camera steady. The focal plane shutter allows speeds of 1/1000 of a second and the focusing is done by means of a mirror arrangement which reflects the image right side up at the very moment of exposure. * * *

A Speedy Runabout on the Niagara.

The photograph on this page shows a 26-foot runabout owned by Mr. A. J. Utz, of Buffalo, sales manager of the Sterling Engine Company, making 20 miles per hour on the Niagara River. The boat is equipped with an 18-25 h. p. Sterling motor and is an exceptionally easy boat to handle. (Continued on page 72.)



An 18-foot Gile runabout, equipped with a 15 h. p. motor, making an actual speed of 17 1/16 m. p. h. over a Government measured course.

"Foxy Quiller."

The Dean Manufacturing Company, of Newport, Ky., in connection with Ed. Henshaw, of College Hill, Cincinnati, have built the boat

CALENDAR

1911

SUN MON TUES WED THUR FRI SAT

JULY

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1911

SUN MON TUES WED THUR FRI SAT

AUGUST

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NEW YORK TO ALBANY AND RETURN: July 1. Annual race of the New York Motor Boat Club. Start 6 p. m. Open to all motor boats, except automobile boats, less than 40 feet over all.

CAPE MAY RACE, NATIONAL YACHT CLUB: July 1. Brooklyn, N. Y. Cruisers 40 to 80 feet, A. P. B. A. handicaps. Distance, 315 miles.

PACIFIC INTERNATIONAL RACE: July 2. Long-distance cruising race of the Pacific International Power Boat Association. Start from Vancouver, B. C. Distance, 235 miles.

NEW ENGLAND ENGINE AND BOAT ASSOCIATION: July 4. Fifth annual open motor boat race for the championship of New England, held off the club house in Boston Harbor.

MISSISSIPPI VALLEY POWER BOAT ASSOCIATION: July 4, 5 and 6. Annual regatta, Dubuque, Ia., Dubuque Motor Boat Club.

YACHTSMEN'S CLUB OCEAN RACE: July 8. Start near Atlantic City, N. J., to Scotland Light Ship, Fire Island Light Ship and return. Distance, 196 miles.

HOUSTON, TEX., LAUNCH CLUB: July 10, 11 and 12. Annual regatta.

MARBLEHEAD RACE: July 14. Motor Boat Club of America. From Huntington Bay, Long Island Sound, to Marblehead, Mass. Distance, 240 miles.

NORFOLK TO BALTIMORE RACE: July 15. Maryland Motor Boat Club. Distance 187 miles.

CHESAPEAKE BAY YACHT RACING ASSOCIATION: July 16 to 28. Chesapeake Bay cruise including motor boat races.

INTER-LAKE YACHTING ASSOCIATION REGATTA: Put-in-Bay, Lake Erie. Motor boat races, on July 18 and 20. Speed boats, cruisers and open boats.

DULUTH MOTOR BOAT RACE: July 20. Speed boats. Annual Midsummer Water Carnival, Duluth, Minn., Boat Club.

HALIFAX RACE: July 22. Start of National Yacht Club's Reciprocity Race from Brooklyn to Halifax, N. S., for the William Randolph Hearst Trophy.

MACKINAC ISLAND CRUISE: July 22. Start of Chicago Yacht Club's cruising race from Chicago to Mackinac Island.

WESTERN POWER BOAT ASSOCIATION: July 25 and 26. Third annual regatta, speed boats, conducted by the Illinois Valley Yacht Club, at Peoria, Ill.

NEW YORK TO CAMDEN, N. J., OCEAN RACE: August 4. Cruisers, 30 to 50 feet. Start off club house of New York Motor Boat Club, finish off club house of Camden Motor Boat Club. Distance, 225 miles.

GREAT LAKES POWER BOAT LEAGUE: August 4 and 5. Annual regatta, at Detroit.

SCHIFFS RELIABILITY CRUISE: August 7 to 14. This race will start from Detroit and will finish at Buffalo, N. Y., under the auspices of the Great Lakes Power Boat League. Distance, about 600 miles. Open to power boats not under 30 feet in length.

FRONTENAC YACHT CLUB: August 7 to 12. Motor boat race week, Frontenac, N. Y.

A. P. B. A. GOLD CHALLENGE CUP RACES: August 8, 9 and 10, for gold cup now held by Frontenac Yacht Club, Frontenac, N. Y., on the St. Lawrence.

ATLANTIC CITY TO CAPE MAY, N. J.: August 12. Race for speed boats, Sea Isle City Yacht Club.

FIRE ISLAND LIGHT SHIP RACE: National Yacht Club, August 12, Brooklyn, N. Y. Cruisers 30 to 70 feet, A. P. B. A. handicaps. Gravesend Bay to Fire Island Light Ship and return. Distance, 84 miles.

ELIMINATION TRIALS: August 16, 17 and 19, to determine defenders of the Harmsworth Trophy. Motor Boat Club of America, Huntington, L. I.

BRITISH INTERNATIONAL RACES: August 24, 25, 26. For the Harmsworth Trophy defended last year by Dixie III. Huntington Bay, L. I. Motor Boat Club of America.

HUDSON RIVER YACHT RACING ASSOCIATION: September 4. Annual regatta, at onkers, N. Y.

NATIONAL ASSOCIATION OF ENGINE & BOAT MANUFACTURERS: September 4 to 9. Annual national motorboat carnival, held by the National Association in conjunction with the Motor Boat Club of America. Race for the High Speed Long Distance Trophy. Huntington Bay, L. I.

ASTORIA, ORE., MOTOR BOAT RACE MEET: September 4 to 9. Astoria Centennial, on September 7, 8 and 9, free-for-all Pacific Coast Championship series.

GREAT LAKES CHAMPIONSHIP FOR THE E. A. THOMAS TROPHY: September 16. Motor Boat Club of Buffalo, course on the Niagara River.

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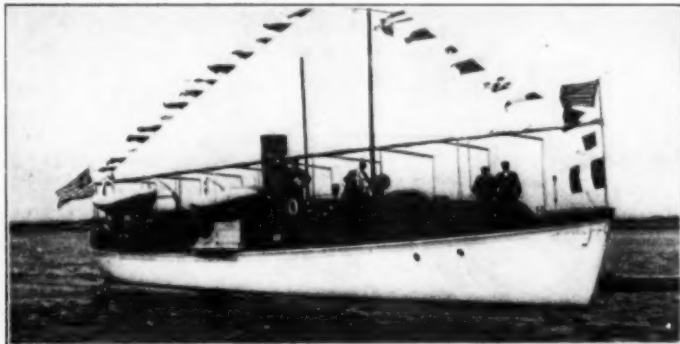
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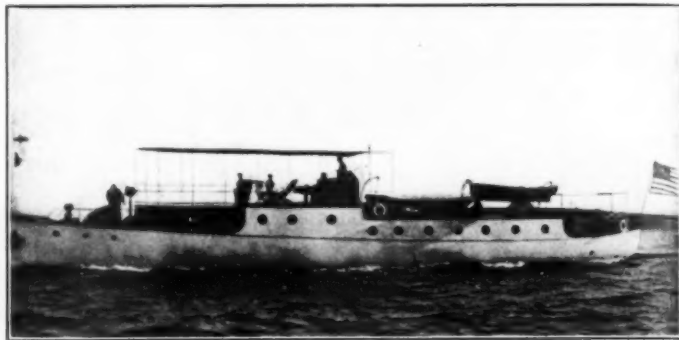
Telephone
1375 Broad

15 William Street
New York City

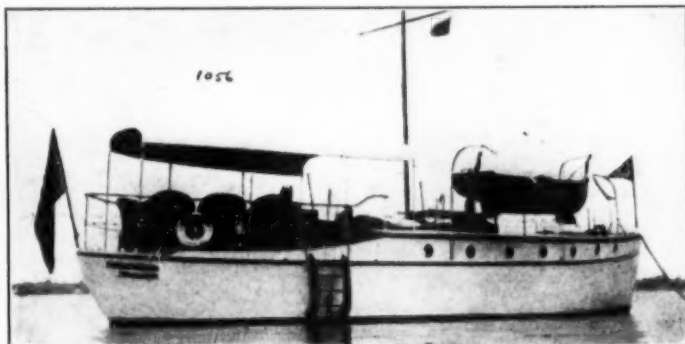
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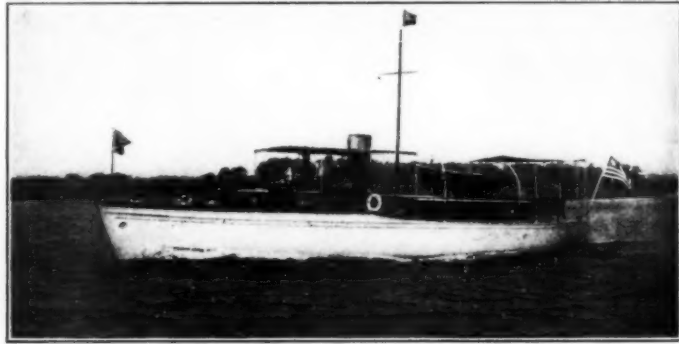
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Please mention MOTOR BOATING.



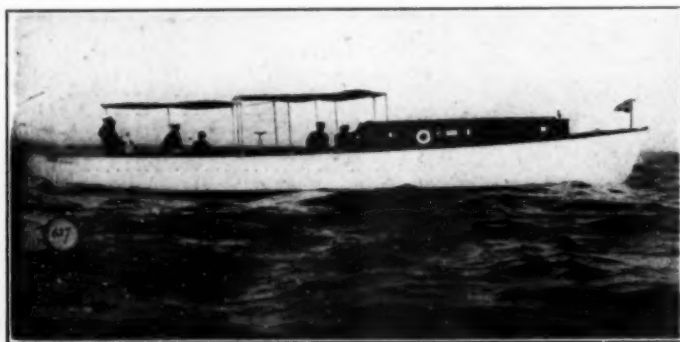
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Please mention MOTOR BOATING.



No. 1056.—Bargain—48 x 11.6 ft. raised deck cruiser; built 1909; speed 11 miles. In commission. Cox & Stevens, 15 William St., New York.
Please mention MOTOR BOATING.



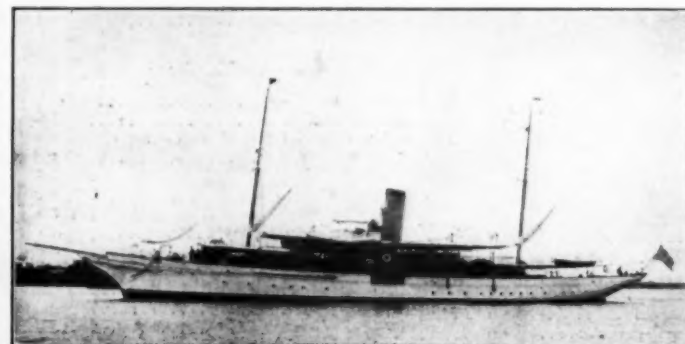
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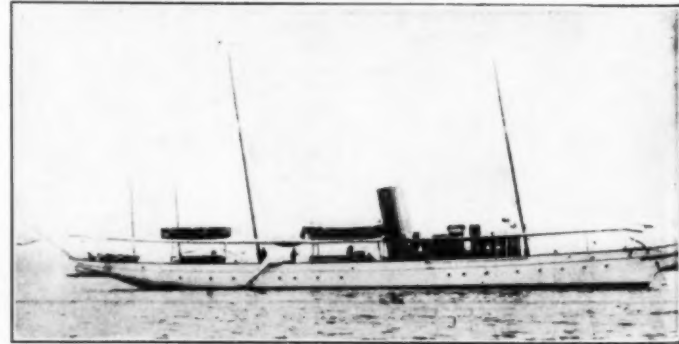
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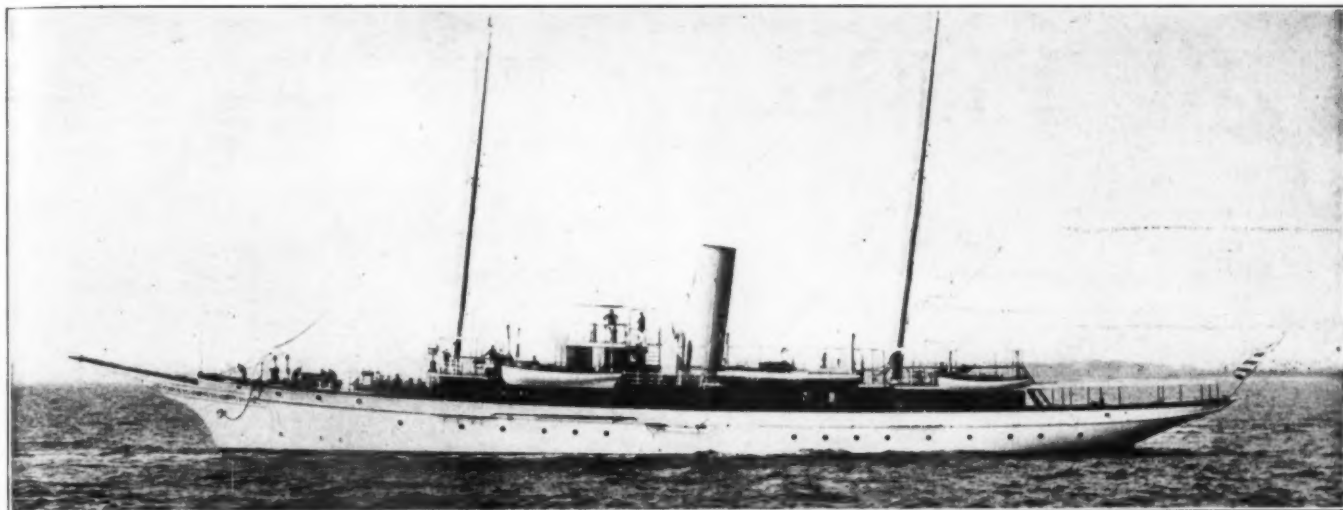
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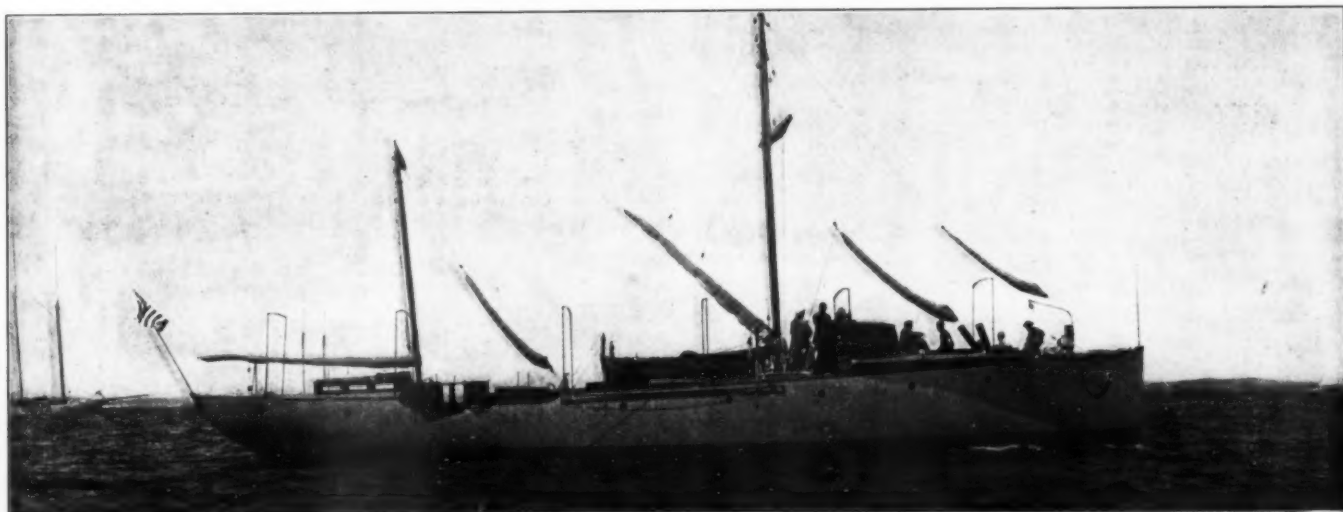
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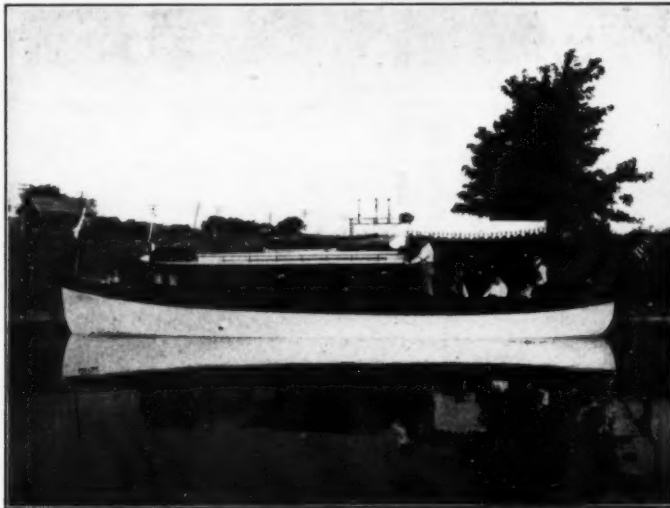
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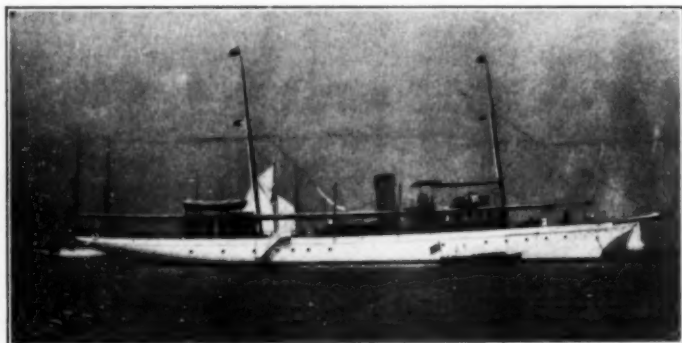
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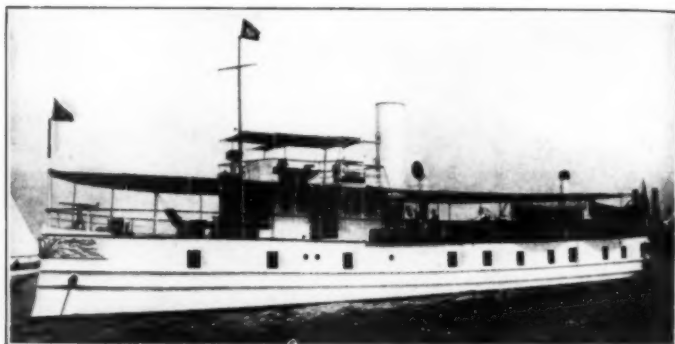
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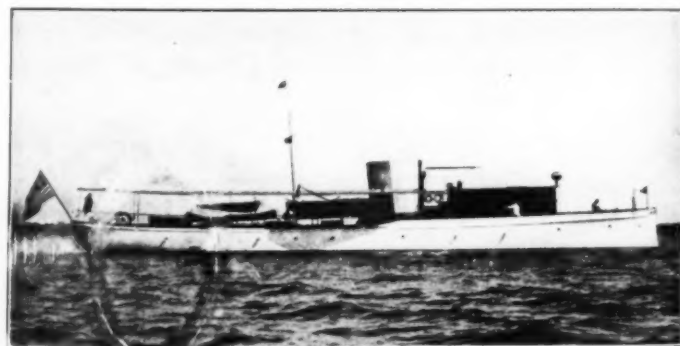
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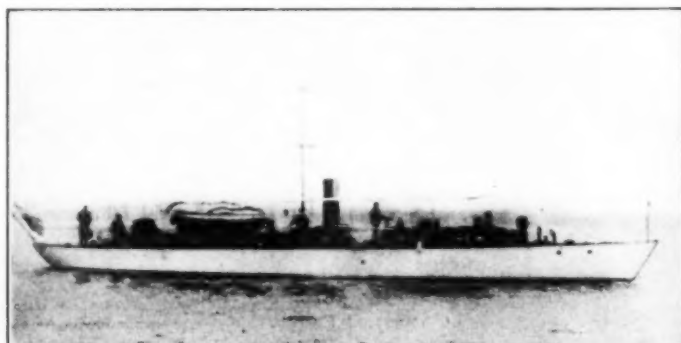
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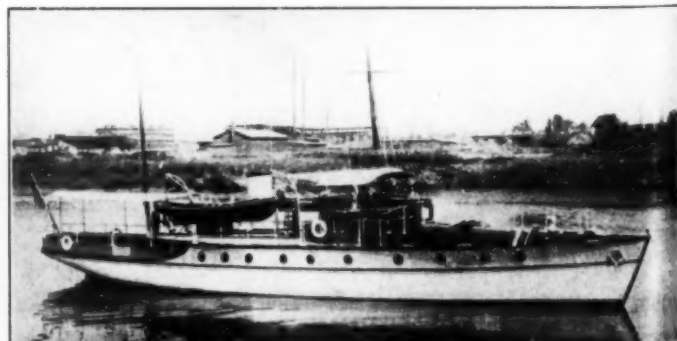
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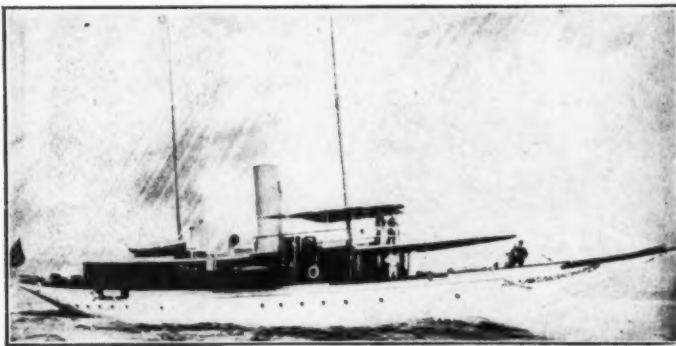
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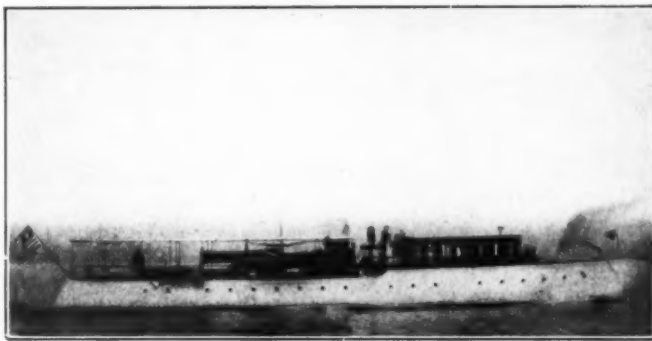
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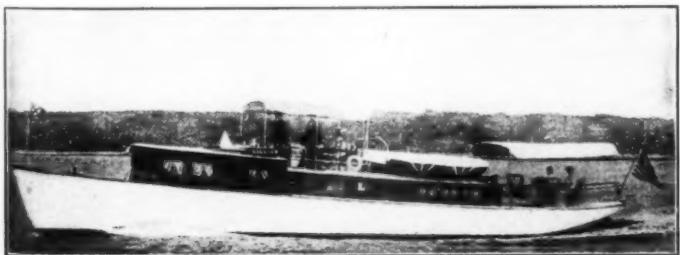
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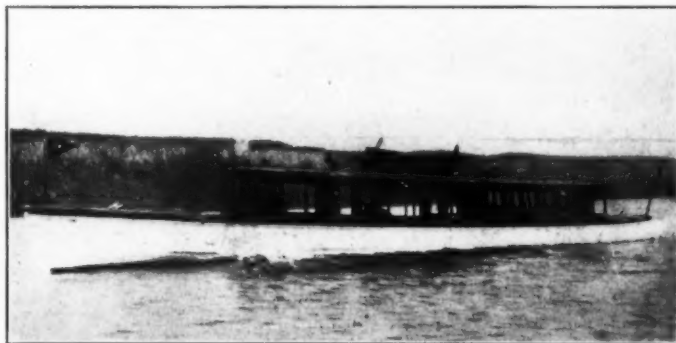
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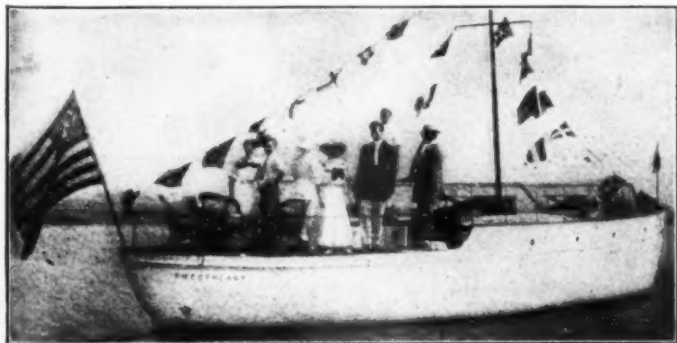
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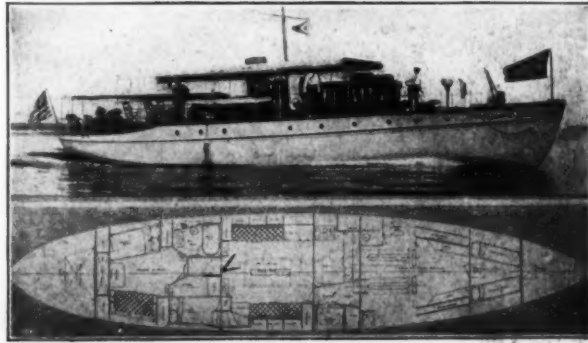
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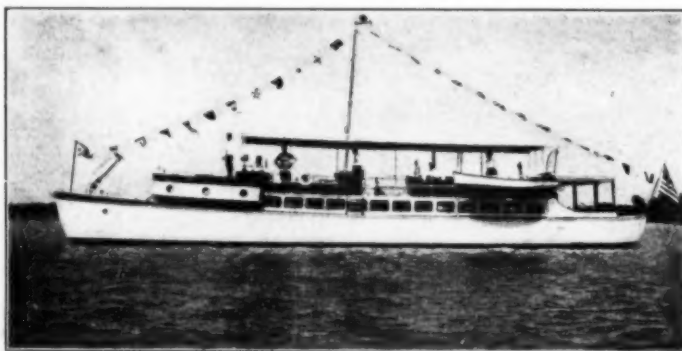
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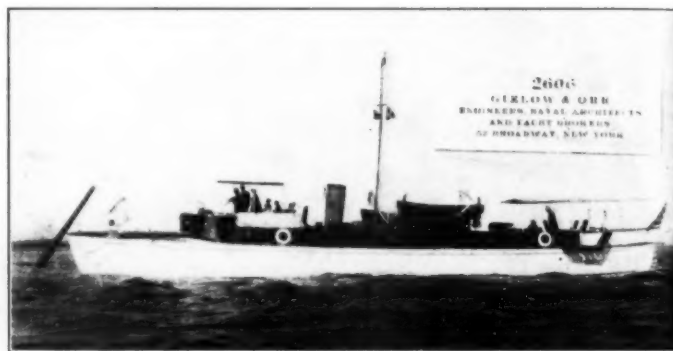
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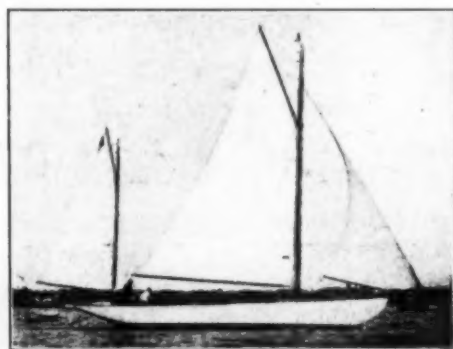
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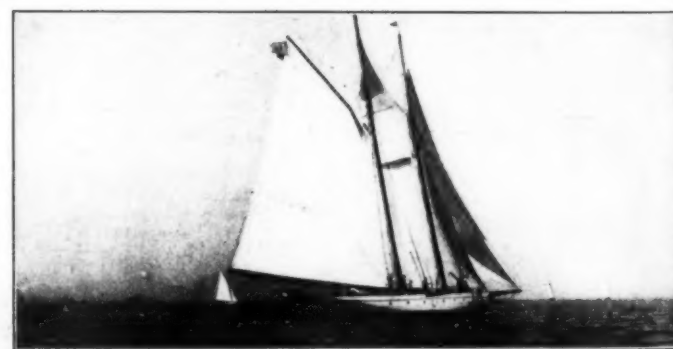
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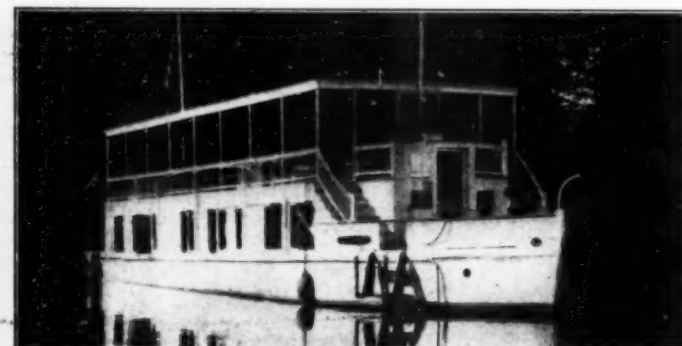
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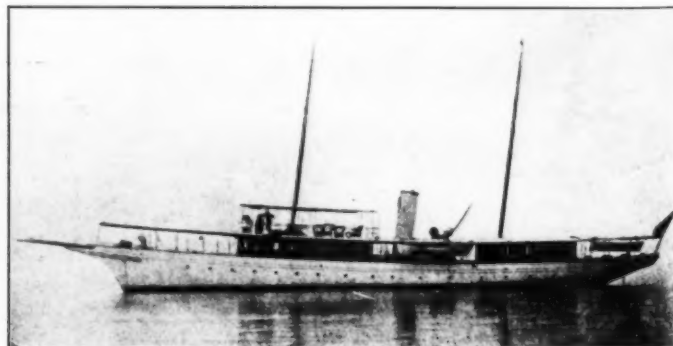
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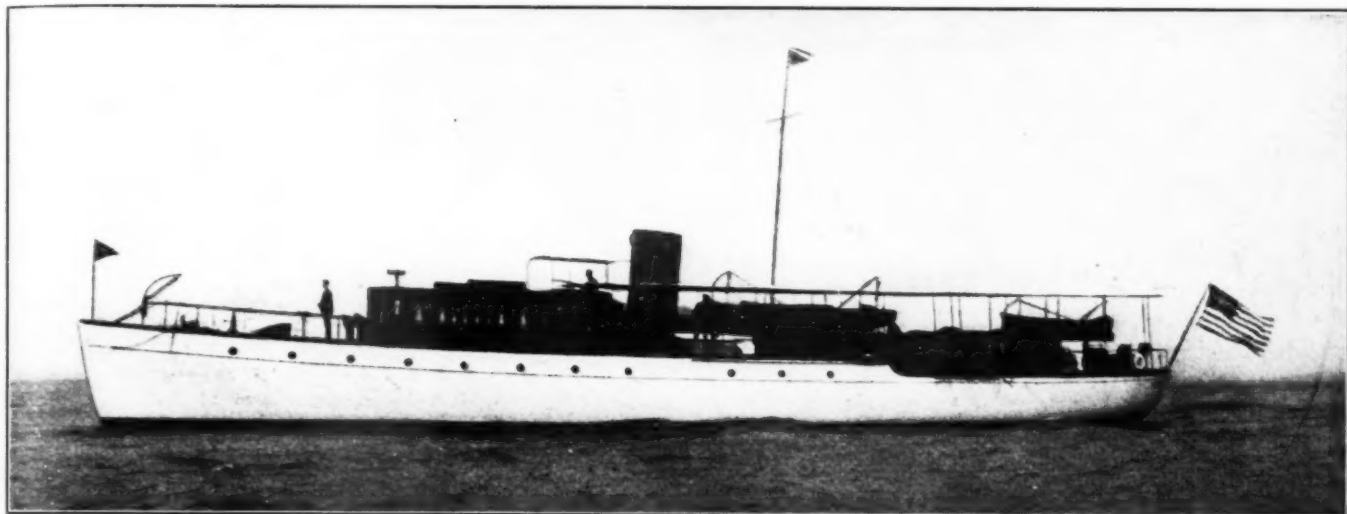
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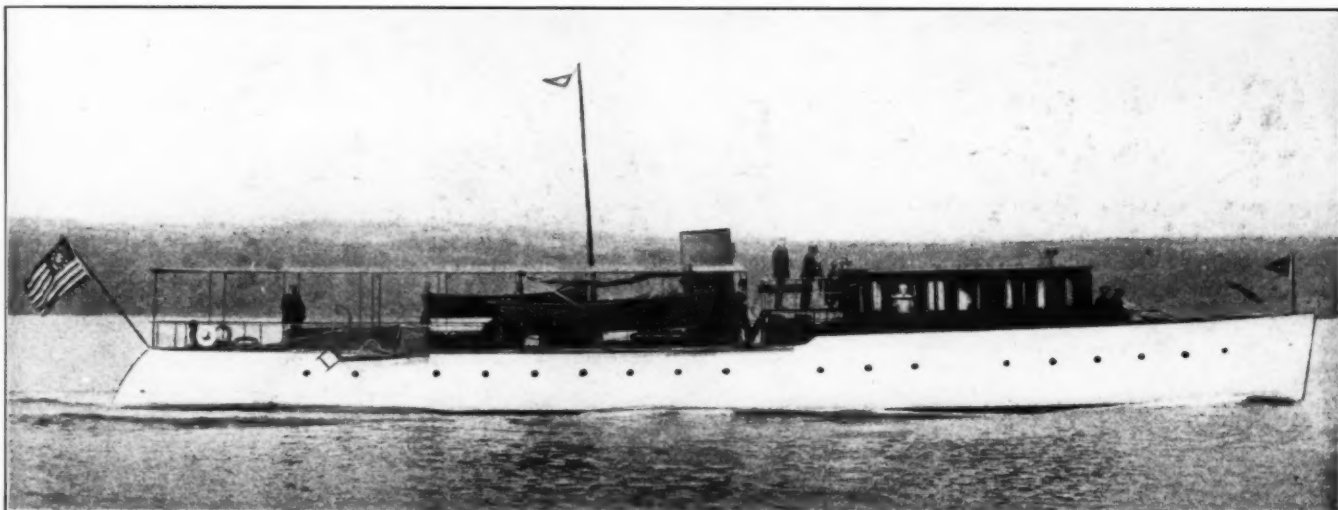
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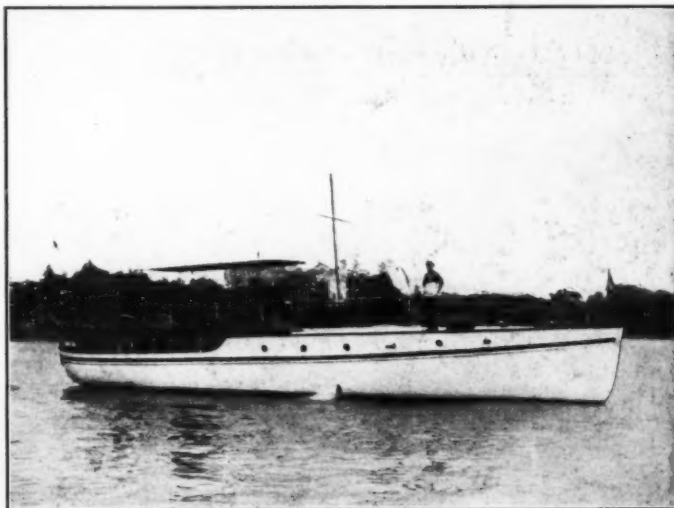
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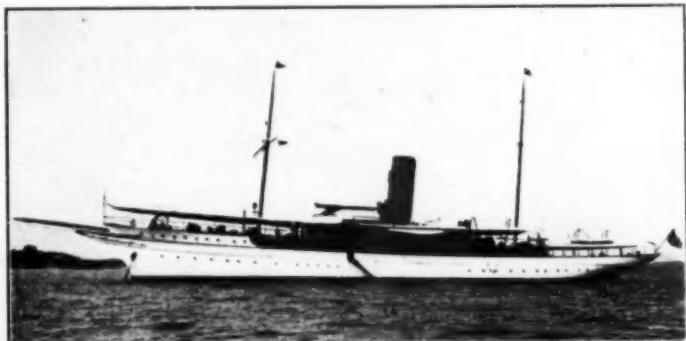
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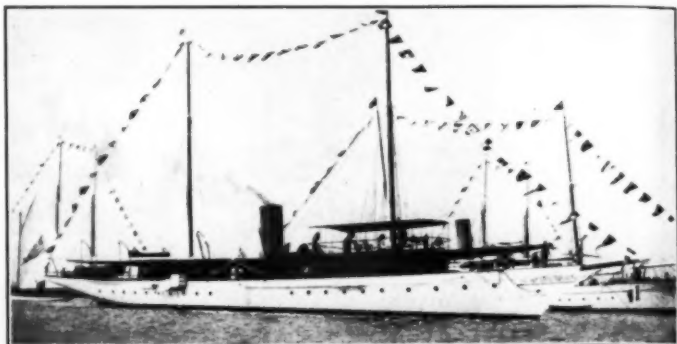
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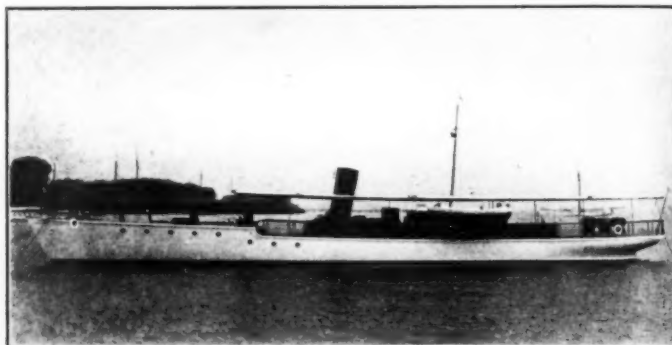
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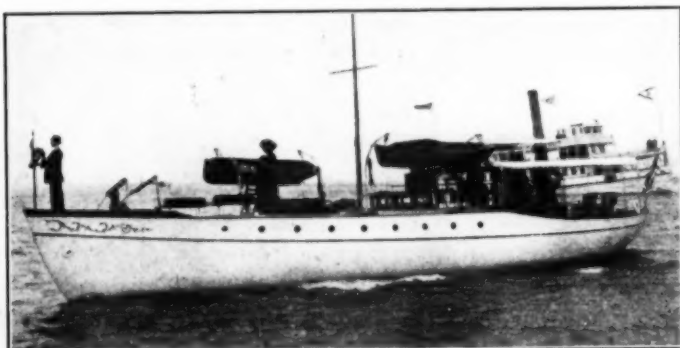
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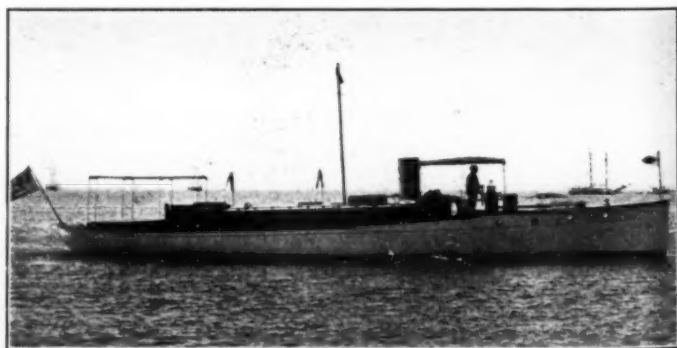
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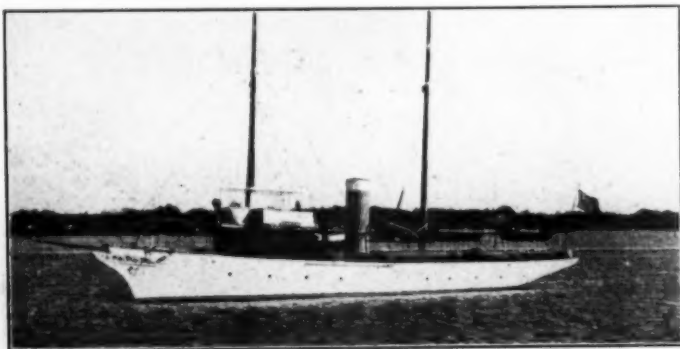
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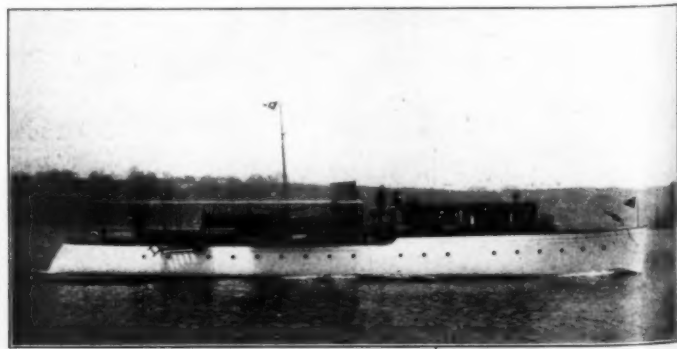
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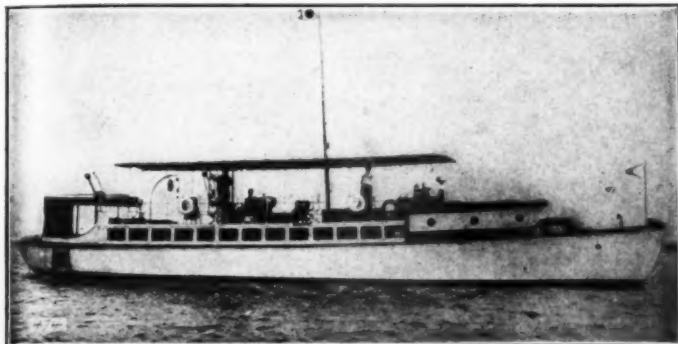
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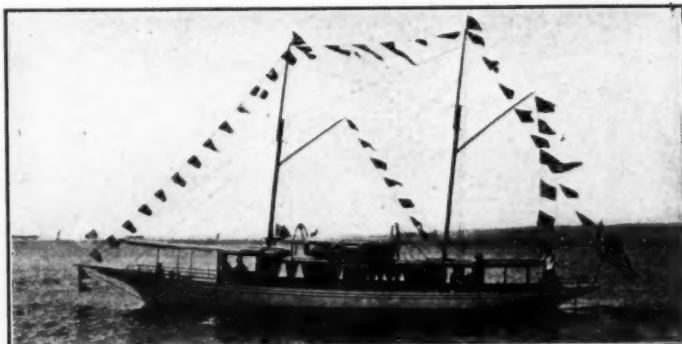
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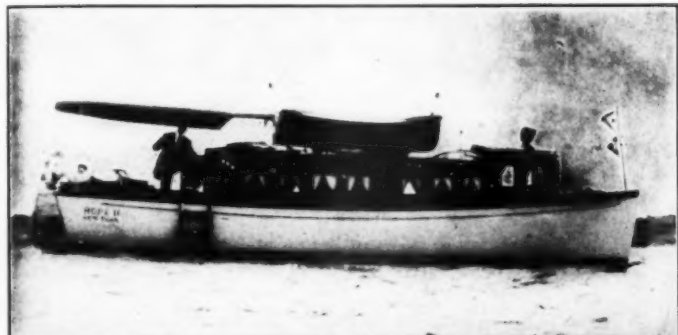
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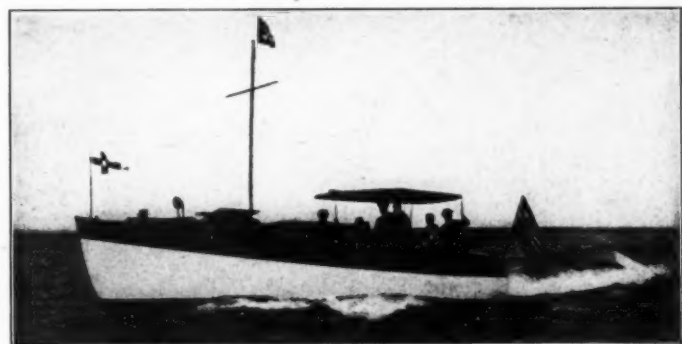
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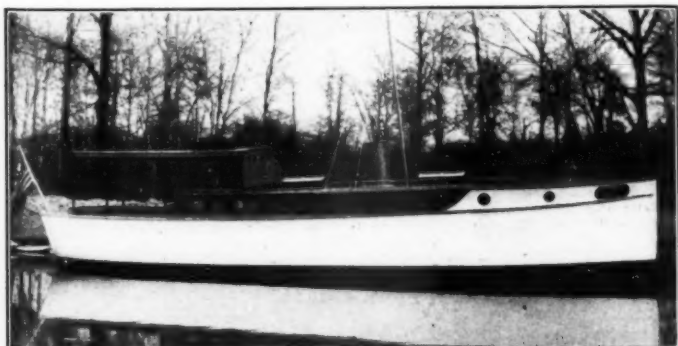
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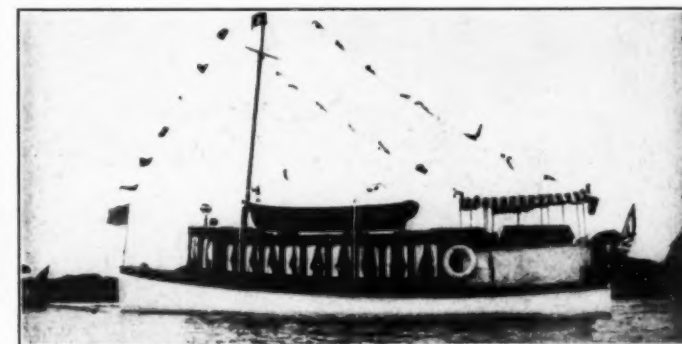
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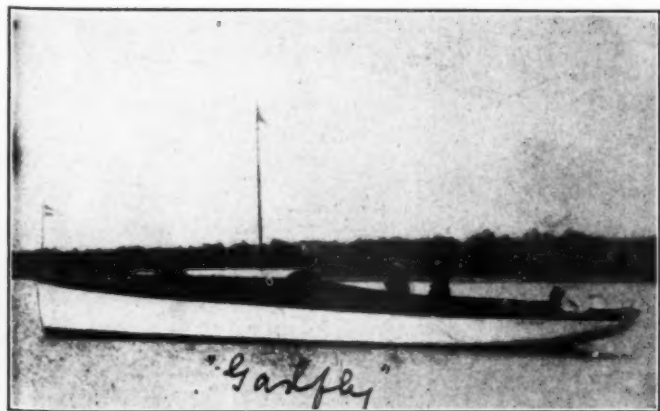
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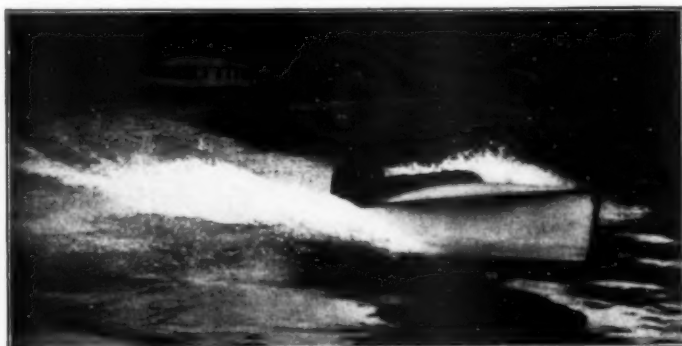
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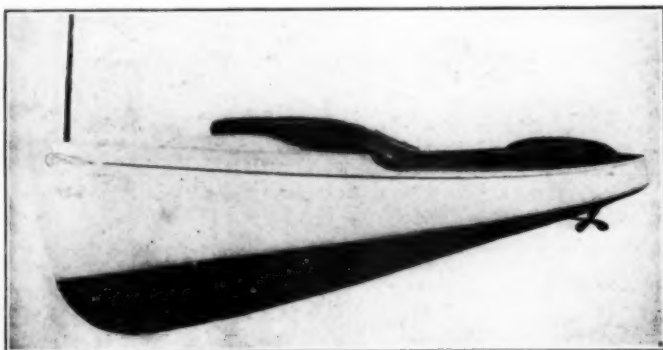
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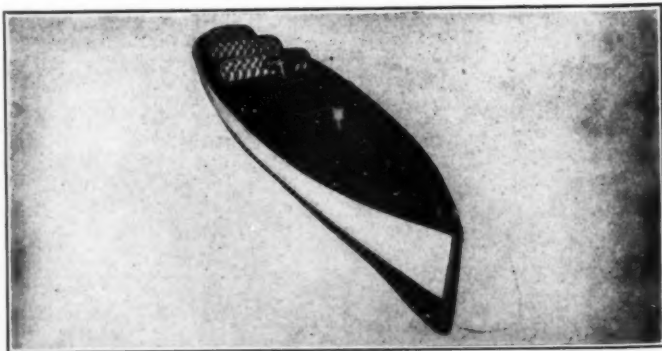
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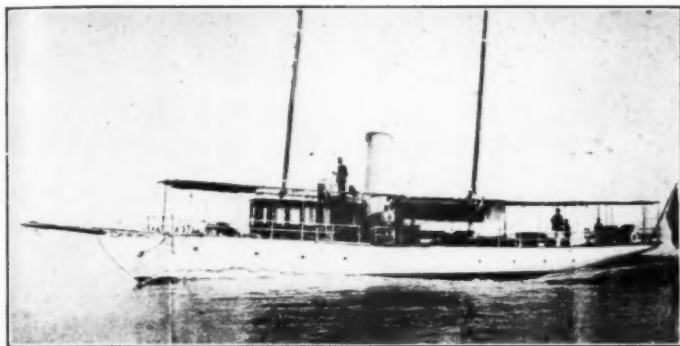
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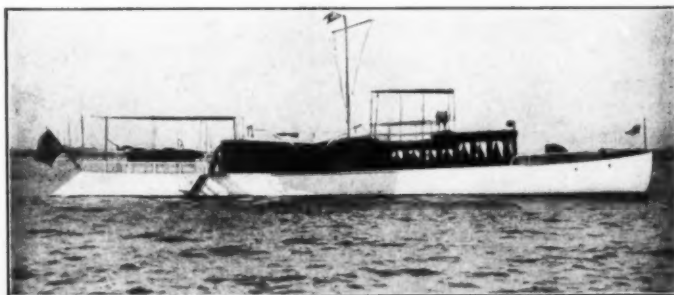
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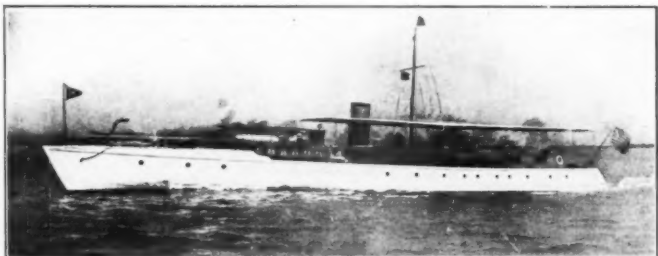


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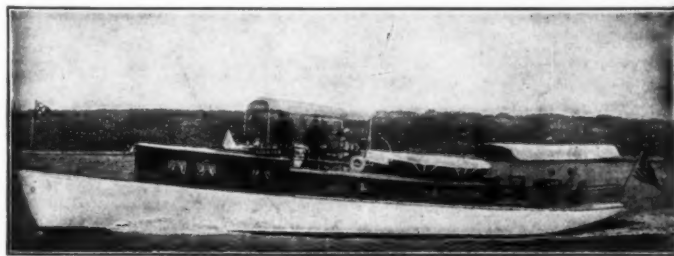


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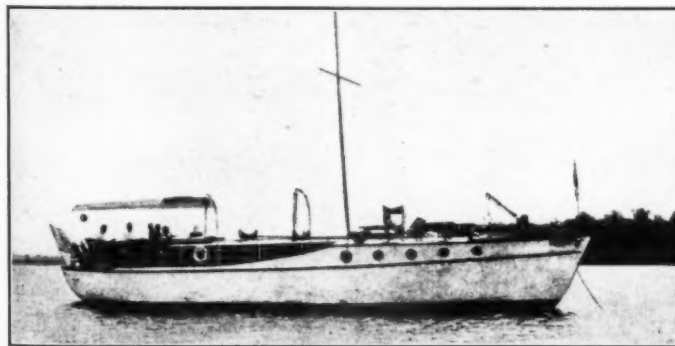


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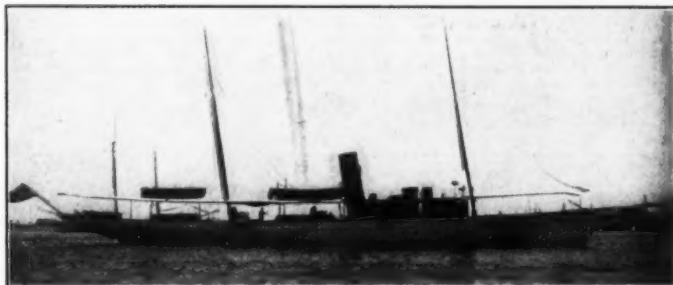


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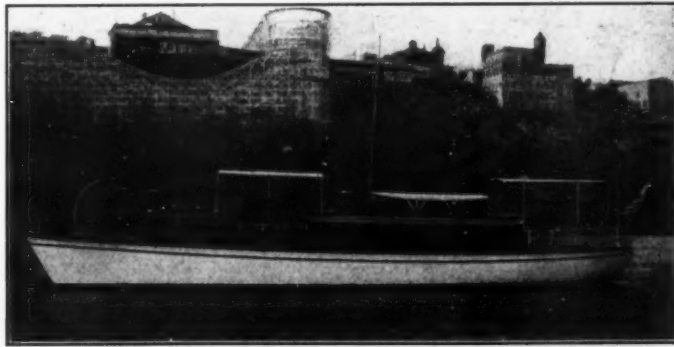
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Second Hand Steam and Motor Boats for Sale



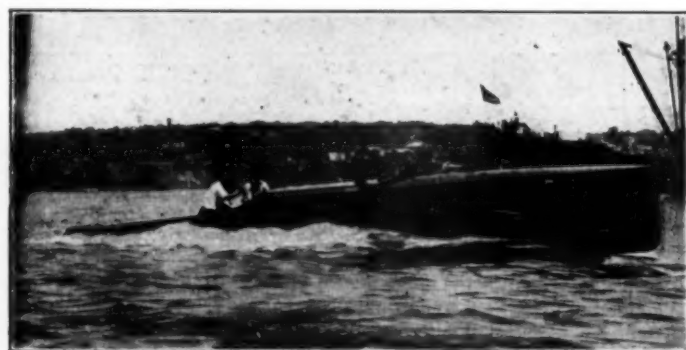
Raised deck cruiser; length 30 ft.; beam 7 ft. 6 in.; draft 2 ft. 2 in. Designed and built by Gas Engine & Power Co. and Charles L. Seabury & Co. (consolidated), Morris Heights, New York City. Delivered January 10, 1910. Speed, 9 to 10 miles per hour. In general.—This is an ideal cruiser for three persons—having stateroom with wide berth, and berth in engine room. Toilet and galley. Cockpit very roomy with stationary wood roof and side curtains. Glass wind shield at after end of cabin house. Boat is lighted throughout with electricity, having dynamo and storage batteries. Machinery.—Engine is a 4-cylinder, 4-cycle, 4½ x 5 in. speedway, 18-22 H. P., arranged for one man control. Fully found and furnished. Fine order throughout.

Please mention MOTOR BOATING.



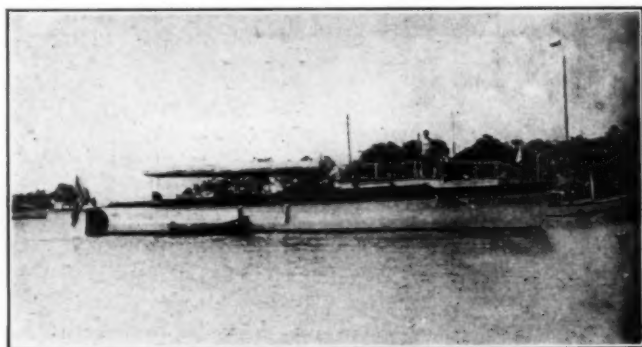
Raised deck cruiser, 44 ft. over all, 38 ft. water line, 9 ft. 6 in. beam, 3 ft. draught. Designed and built by us in 1910. Steersman's platform on starboard side, with controls to motor on steering wheel; reverse lever located at this point. Cockpit left open for chairs; thwart seat at after end of cockpit. Awning and side curtains for cockpit. Boat is lighted with acetylene gas, Commercial Co. system. Machinery: Machinery consists of a 4-cylinder, 4-cycle, 6 x 6 in. Speedway gasoline marine engine, 32-40 h. p. Copper fuel tank, 200 gals. capacity. Speed of the boat is between 10 and 11 miles per hour. Is an elegant sea boat, having been used all summer in vicinity of Block Island. This is without question the best raised deck cruiser of the size that is available, and is only offered, as owner is contemplating having a larger "Speedway" boat built. Must be seen to be appreciated. Fully equipped.

Please mention MOTOR BOATING.



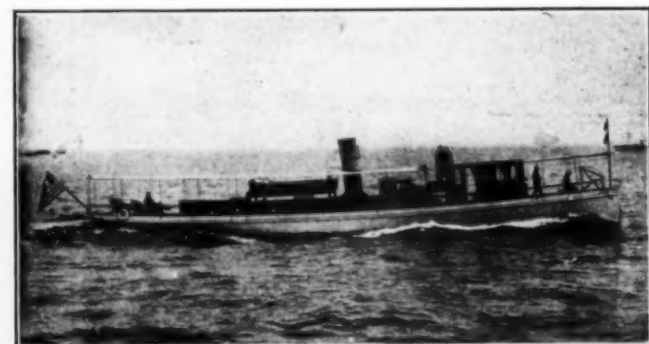
Open motor boat, speed type, 39 ft. 4 in. over all, 5 ft. 4 in. beam. Designed and built by us 1909. Speed, 29 to 30 miles per hour. Hull planked and finished in mahogany. Varnished inside and outside. Equipped with 6-cylinder, 6¼ x 8 in. Speedway gasoline engine with Bosch double ignition—both high and low tension systems. Arranged for one man control. Can seat comfortably six persons, and is the best launch of its kind ever turned out. Has had very little service and will be delivered in fine order at Morris Heights.

Please mention MOTOR BOATING.



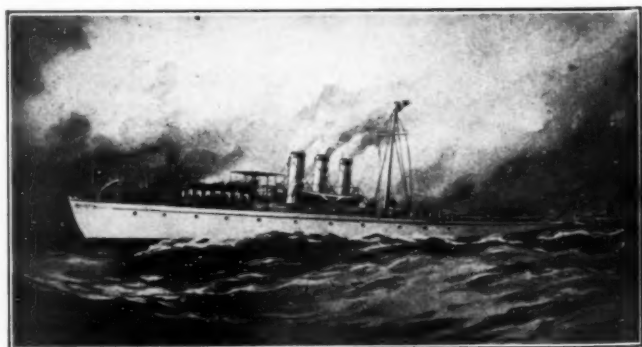
Motor boat, "raised deck type," 55 ft. long, built by Matthews Boat Co. in 1910; has toilet, galley, cabin and motor room; extra large cockpit; equipped with 6-cylinder, 6¼ in. x 8 in. "Speedway" gasoline engine, (Special) 125 H. P.; arranged for one-man control; electric lights; fully found; speed 17 to 18 miles per hour; a very attractive boat; specially adapted for day service.

Please mention MOTOR BOATING.



Twin-screw, light-draft steam yacht, 83 ft. over all; has large saloon, double stateroom, deck dining room, bridge, etc.; two triple-expansion engines and "Seabury" water tube boilers; electric lights, etc.; boat and machinery in good order, subject to closest inspection.

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High-speed twin-screw steam yacht, 137 ft. over all. Designed and built by us in 1909. Equipped with two "Seabury" triple-expansion engines and "Seabury" water tube boilers; fully found; fine order throughout; speed guaranteed 30 miles per hour; fastest steam yacht now available.

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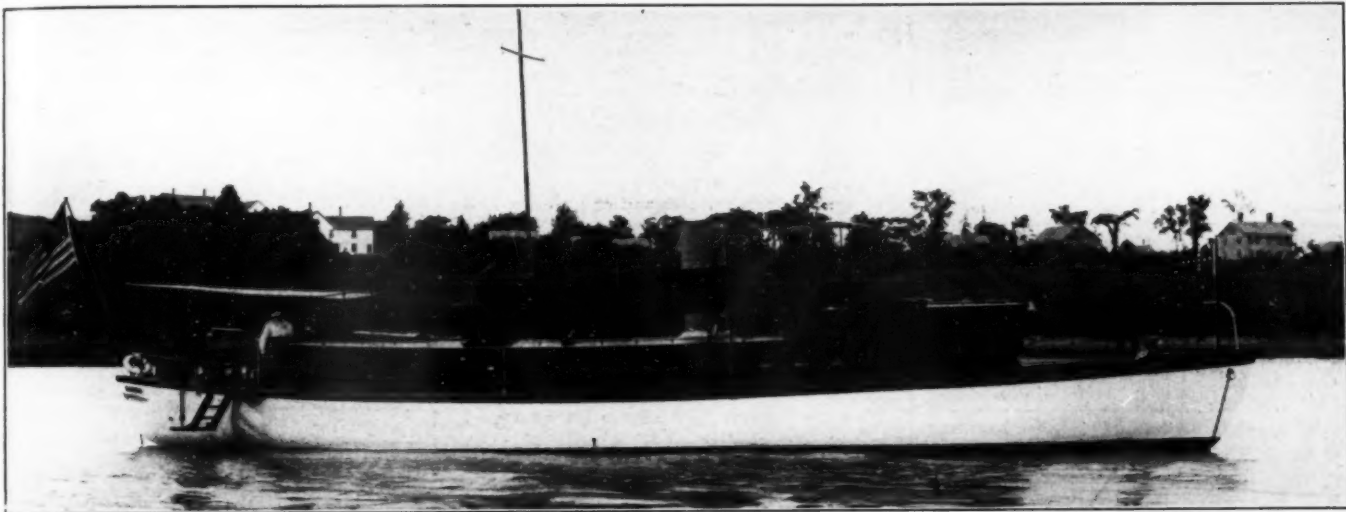
All of the above boats can be seen at our works. Further particulars, plans, etc., will be forwarded to those interested. Inspection of these boats is invited. We have a number of other second-hand craft of various styles and sizes for sale.

THE MOTOR BOATING MARKET PLACE

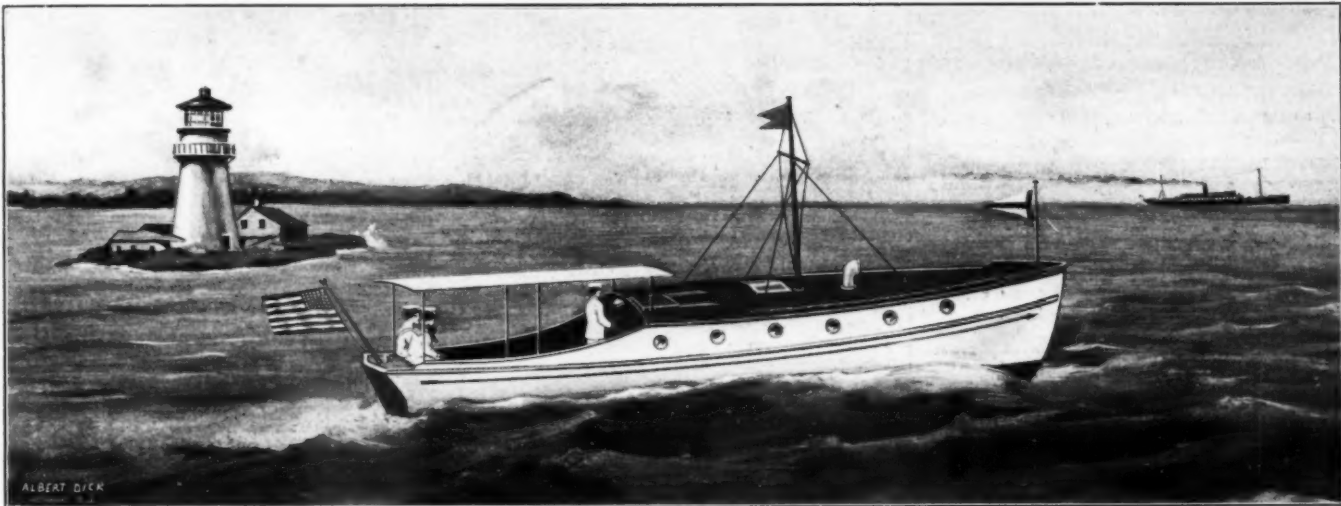
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For sale or charter—This new 40 x 9 ft. cruiser, finished throughout in panelled mahogany; speed guaranteed, with 40 H. P. motor, twelve miles; no finer boat built; Price, \$3,000. Complete plan and specifications on request. Seen at factory, Tarrytown Boat Works, Tarrytown, N. Y.

MOTORS and sailing boats of all styles for sale and to let, suitable for the Great South Bay. Frank Weeks, Patchogue, N. Y.

A BEAUTY—26 Foot Runabout. Very fast and comfortable; seats six; 32 H. P.; auto top; wind shield; complete in every detail; all practically new, at half cost. "Tartar." Audubon Yacht Club, 165th St., Hudson River New York.

FOR SALE—25 ft. topdeck stern raised decks, seating capacity 20, manufactured by Edison Boat and Canoe Co. with a 5-horse power Detroit Auto-Mousine Engine. This boat has been run but a little. First check for \$200 gets this bargain. Ralph E. Wright, 21 Washington St., Cortland, N. Y.

FOR SALE—We have a few of our own engines taken in part payment for those of greater power. They have been completely overhauled at the factory and rebuilt as good as new. They carry our usual guarantee and we offer them at attractive figures as long as they last. Write us. Brown-Talbot Machinery Co., 19 Oakland St., Salem, Mass.

FOR SALE—Extreme speed hull 32 feet by 5 feet, designed to carry any engine up to 1,000 lbs. in weight. This hull is new and has never had any engine installed. We offer at \$217 subject to previous acceptance. Brown-Talbot Machinery Co., 19 Oakland St., Salem, Mass.

FOR SALE—Semi-speed launch, 28 x 5 1/2 ft., in first class condition. Has wooden hinged covers for engine cockpit and is well built of oak and cedar. Price \$183 to prompt purchaser. Brown-Talbot Machinery Co., 19 Oakland St., Salem, Mass.

BROKEN cylinders and other automobile parts of cast iron and aluminum made good as new by autogenous welding at about one-fourth cost of new ones. Shipment made within 24 hours from arrival. Guarantee, references and indisputable evidence for the asking. Waterbury Welding Works, Waterbury, Conn.

\$950 38 x 8 Flush Deck Cruiser, built 1910. Toilet, galley, sleeping compartment for four, electric lights, 14-foot Dingy, fully equipped, 4 cylinder 4 cycle 4 1/2 x 4 1/2 motor, Smith & Baldridge clutch, Apple dynamo, etc., etc., \$950.00 complete, or will sell without motor. A bargain. Now in commission in Detroit.
 A. B. WORCESTER, 19 Waybury Ave., Detroit.

FOR SALE AT BARGAIN PRICES.



One 40 ft. Cabin Cruiser built in 1910, 25 H. P. 4 cyl. engine under forward deck. Quartered white oak finish. Brass trimmings. Complete in every detail with linen, cooking utensils, dishes, etc. Electric lighting system, searchlight, sailing lights, flags, dinghy, signal mast. Light draft. Salt water fittings. Just completed 6,000 mile cruise. Engine overhauled and outside hull refinished. Everything in perfect condition. Price \$3,600. Immediate delivery.

We also offer at \$2,250 a 45 ft. glass Cabin Cruiser fully equipped and ready for immediate use. A 28 ft. mahogany planked and finished 25 H. P. Runabout at \$1,450. Immediate deliveries.

We manufacture TRUSCO power air compressors and marine supplies of every description. Send ten cents for our large catalog.

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 New; 25 ft. x 5 ft.; 100 H. P.; 35 miles per hour; guaranteed. Price \$2,500. We use the Emerson.
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 The material, design, workmanship and accessories are all of the very best than can be procured.

Light 6-30	Light 4-20
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Write for catalogue "B."
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FOR SALE—Two gasoline launches. One is a 33-ft. 6-in., racing model, seats seven; the other a 30-ft. 15 H. P., seats ten and fully equipped. Both excellent bargains. For full information address E. C. E., 416 S. Salina St., Syracuse, N. Y.

MECHANICAL DRAFTSMAN, 1 year technical graduate, experienced designer gas traction engines, also designing and building motor boats and canoes, wants boat or engine work; \$100.00. A. F. Moyer, No. 310 S. 6th St., Stillwater, Minn.

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Yard and Shop.

(Continued from page 58.)

Bronze-center Tiller Rope.

The Tucker & Carter Rope Company, of 76 South St., New York City, one of the oldest firms in the city are making a special water-proofed linen, bronze center tiller rope, on which they hold a patent. The same linen yarn is used as that which goes into the making of shoe thread. The flax yarn is first hanked and thoroughly water-proofed, then twisted in the size strands required, and braided around the special bronze wire cable, so that the two substances make one integral rope. The linen braided exterior makes it easy to handle, and since it is entirely impervious to weather, the rope will not shrink and cannot stretch. This rope is made in 1/4, 5/16 and 3/8 inch sizes.

The Yachtsman's Guide.

The Yachtsman's Guide for 1911, published by Frank L. Wiles, 205 Tremont Bldg., Boston, Mass., is a most handy and useful book for the motor boatman. This is the 33d year of this publication. It contains a nautical almanac and tide tables, motor boat laws, a useful international register of yacht and motor boat clubs, with their flags, printed in color, and a great deal of other information.

Monitor Company's Business Expanding.

The Monitor Boat & Engine Company, Newark, N. J., is compelled by the demand for its product to enlarge its new factory, built this spring, to twice its present size. Land has already been purchased for the extension. The company, which has hitherto manufactured knock-down boat frames exclusively, is now also making semi-finished hulls, that is, frames simply planked up, without interior or exterior finish.

Lloyds' American Yacht Register.

Lloyds' Register of American Yachts, 1911, the ninth annual edition, differs from its immediate predecessors only in the increasing predominance of power over sail among the yachts listed, and of gasoline over steam. While individual examples show the rapid growth in size of the motor propelled yacht. The Register is but slightly larger than last year's edition, a very thorough revision having resulted in the dropping of many old yachts. The book contains 468 pages, and 45 color plates, the yacht list including over 35,000 names. Yacht clubs and associations to the number of 503, and the names of 3,300 owners, are also included, besides a very complete directory of engine and yacht builders, accessory manufacturers, architects, etc. Published by Lloyds Register of Shipping, 17 Battery Place, New York City.

Mr. Keith's Propeller Article.

The article on "Choosing the Right Propeller," which appeared in the June issue of Motor Boating was written by Mr. H. H. W. Keith, of the Massachusetts Institute of Technology, but due to a typographical error the article was signed W. H. Keith.

The Contents Page.

The picture on the contents page is of Nemaha, as she appeared on the ways just before her launching at the Nilson Yard on May 27th. Nemaha was designed by Messrs. Cox & Stevens, of New York City, and was built for Mr. Huston W. Wyeth of St. Joseph, Mo. She is 98 feet over all, with 16 feet beam, and three feet six inches draft, and is propelled by two 100 h. p. Standard motors.

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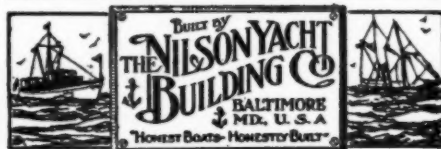
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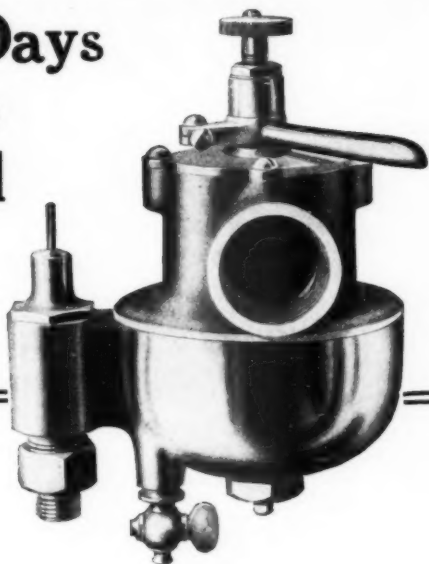
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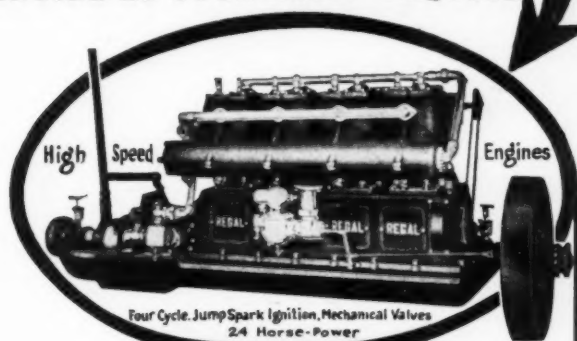
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REGAL MARINE ENGINE

**EITHER A HIGH SPEED OR A HEAVY DUTY
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The *Regal Engine* is above all a perfect service engine. It will always do its allotted work day after day without a hitch.

The *Regal Engines* now in use have continued up to date to give perfect satisfaction. We have scores of unsolicited testimonials to this effect. Read two of them here.

Regal Gas Engine Co., Coldwater, Mich.

Jersey Shore, Pa.

Gentlemen:—I am using one of your 20 H. P. engines and wish to say it has given the very best of satisfaction. The engine is installed in a 33 foot boat and averages over 50 miles a day.

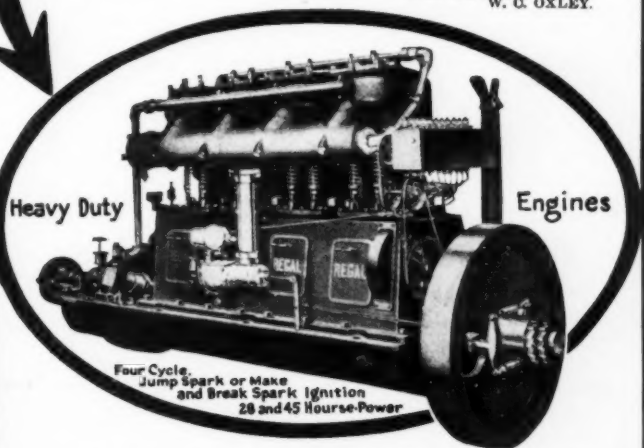
Yours respectfully,
O. R. MILLER.

Regal Gasoline Engine Co., Coldwater, Mich.

Melbourne, Australia.

Gentlemen:—I have installed the 16 H. P. Regal Engine in a new boat, the "Katie B," 36 feet by 4 feet, and it is giving perfect satisfaction. In a recent race held here, "Katie B" made an excellent showing. The race was over a four-lap course of 12 miles and we finished before any of the others had completed their second lap.

Yours very truly,
W. O. OXLEY.



Regal Engines are of the four-cycle type, equipped with either jump-spark or make-and-break ignition, and Bosch magneto. *Regal High-Speed Engines* are made with one to four cylinders and of three to twenty-four horse-power. *Regal Low-Speed, Heavy-Duty Engines* are made with one to four cylinders and of five to forty-five horse-power.

Send to-day for our 1911 catalogue No. 35, which completely describes and illustrates all types and parts of *Regal Engines*, and reproduces, as well, a few of the great number of testimonials that owners of *Regal Engines* have sent us unsolicited. Write now.

REGAL GASOLINE ENGINE CO.

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Life Preserver, Pillow and Cushion combined.
Guaranteed to support the weight of the heaviest person in the water an indefinite time.
COLORS—Tan, Red and Green.
Covered with the best quality artificial leather.
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Size, 16x16
Weight, 24 oz.
19 Dover St., New York

MR. BOATBUILDER:
Save 25 per cent. of labor cost of planking and decking on every smooth planked boat you build by using CUTLER'S PLANKING and DECKING CLAMP.
Prices: Large Size, \$4. per doz. Small Size, \$3. per doz. Send for Circular.
THE CUTLER CLAMP, 310 Lenox Ave., N.Y. City
Agents: F. A. Olmsted, 2582 3rd Ave., N.Y.C.; Eaton & Wilson, New London, Conn.; Monitor Boat & Engine Co., Newark, N.J.; The Hubbell & Wade Co., Bridgeport, Conn.; R. W. Newdick
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Two Cycle, Single Cylinder, 1 1/2 H. P.
\$45 Complete with fresh water equipment. This is one of three splendid marine engines described in our 1911 booklet.
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Write for catalog.

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4 CYCLE ONLY
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Without Exception, the Finest Hoods Manufactured
Made of strong brass tubing covered with best waterproof Gov't. Khaki. Polished brass fittings. Bows work on hinges fastened to coaming. Quickest to put up and down. Fits perfectly because every hood is made to order. Several styles. Don't buy elsewhere before writing us for prices.
The Jones Scaffolding Co., 167 Huguenot St., New Rochelle, N. Y.

MARINE MODELS
PATTERN MAKING, INVENTIONS DEVELOPED, SPECIAL MACHINERY
The H. E. BOUCHER Mfg. Co.
20 FULTON STREET, N. Y., U. S. A.

Cowl and Syphon.

IN a small cruiser there is always a lack of space, and consequently everything is more or less crowded. This condition of things is a detriment to the circulation of air in the boat. In a boat with an over all length of twenty-eight feet sometimes three people sleep. This fills the air with poisonous gas and soon one has a stuffy boat. Also, the odors from cooking and from the bilge taint the air and these odors must be gotten rid of if one expects a good night's sleep. The only way to get rid of these odors is to have a circulation of fresh air through the cabin to drive these smells out. There are several ways to get this current of fresh air in a large cruiser, but a small one is an entirely different matter.

Perhaps the easiest way to ventilate a small boat is to have a cowl ventilator forcing a current of air down into some opening or register in the front end of the cabin and a syphon ventilator situated over the range in the after end of the cabin sucking out the foul air. The reason for having the syphon over the range is that the warm air rising through the ventilator from the range helps the syphon to do its work more thoroughly. A hatch over the range would be better in warm weather, but it would have to be closed in a rain or a head sea, and the time it is hottest in a boat is usually during a thunder storm. A good idea would be to have a hinged hatch with the syphon mounted on it, and in fine weather the hatch could be kept open and in stormy weather the syphon would get in its work.

The cabin should never be closed any more than is absolutely necessary. The ports should be left open when possible and the companionway hatch could be of service for ventilation except in very heavy weather or in a following sea.

A friend of mine had a cowl ventilator on the forward deck of his hunting cabin cruiser and one day while he was away someone stole it. He made a very presentable one to take its place from a stovepipe elbow and a foot of six inch galvanized iron conductor pipe, painting them yellow with a ten cent can of bicycle enamel.

The following directions for a syphon ventilator are for those whose pocketbooks won't reach far enough to get one of those ready made ones:

Take a piece of brass tubing or galvanized conductor pipe four inches in diameter and ten inches long. This is for the four inch size, for larger sizes use larger pipe, etc., and heavier metal. Cut one end of this to a two inch bevel. Then get a deck plate, four inch size, with an extra rim and solder the square end of the tube to the inside of this. Next get the tinner to make, or make it yourself, a funnel shaped tube eleven inches long and six inches in diameter at the large end and four at the small. In the center of it cut a hole four inches in diameter. Bend back the prongs and solder onto the round tube. This will give you as good a syphon as you could desire at a very low cost compared to the factory made article.

HARVEY H. LONG, North Escanaba, Mich.

Copper Paint Over Red Lead.

FOR salt water the bottom should be well dried and sand-papered smooth and given a good coat of red lead, add just enough dryer to make it set up slowly and let stand until well dried. This can be put on any time during the winter. Then put on a good coat of the best copper paint, a day or two before putting in the water, the hull should be painted inside, where any bilge water lays, with the red lead and add 1/4 ounce of creasote to keep out the salt water worms. This treatment has been the best way for boat bottoms found in this vicinity.

WILLIAM J. YOUNG, Providence, R. I.

CEDAR BOAT LUMBER

PROMPT SHIPMENT, ANY QUANTITY

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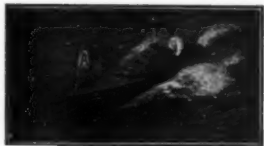
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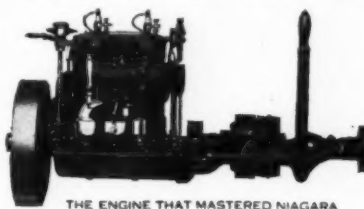


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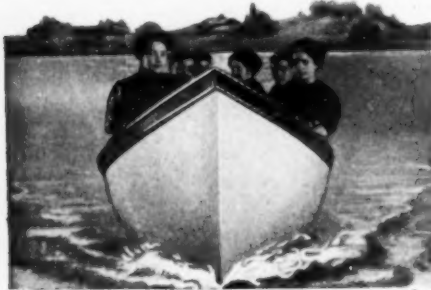
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Among the Clubs.

(Continued from page 46.)

Columbia Yacht Club, New York City. The open handicap races off the club house, West 86th St. and the North River, on June 10, brought one of the largest fleets that ever took part in a motor boat regatta near New York. The day was ideal, and the river free from driftwood. The races were run under 1911 A.P.B.A. rules. The high speed boats raced 15 nautical miles up the Hudson to Ardsley, and return. All the other classes raced over a course in full view from the clubhouse. In the high speed class Peter Pan IV covered the course at the rate of 19.74 knots, but Vita won on corrected time. The Race Committee, consisting of S. Alling Halsey, chairman, W. W. Brinkerhoff, Russell Dart, George N. Moran and Dr. Daniel B. Brinsmade had charge of the regatta. The summary:

Class 1, Open Motor Boats.—Start, 2:15; course, ten miles.

Boat and Owner.	Finish.	Time.
Bunk III, Meakins & Firth.....	3:34:03	1:19:03
Elise, T. Kick.....	3:21:06	1:06:06
Traveller, C. H. Dablestein.....	3:32:56	1:17:56
Bunny, Arthur Haas.....	3:40:09	1:25:09
Accuba, A. C. Bassett.....	3:41:52	1:26:52
Jessie, E. W. Keller.....	3:57:45	1:42:45

Corrected times—Bunk III, 1h. 4m. 32s.; Elise, 1h. 5m. 20s.; Bunny, 1h. 13m. 35s.; Traveller, 1h. 17m. 56s.; Jessie, 1h. 26m. 05s.

Class 2, High Speed Boats Over Twenty-two miles.—Start, 2:30; course, thirty miles.

Vita, J. S. Blackton.....	4:03:33	1:33:33
Peter Pan IV, J. Simpson.....	4:01:15	1:31:15
Tiny Tad, Dr. H. Z. Pratt.....	4:17:11	1:47:11
Edith II, A. E. Smith.....	Did not finish	

Corrected times—Vita, 1h. 21m. 7s.; Peter Pan IV, 1h. 31m. 15s.; Tiny Tad, 1h. 45m. 47s.

Class 3, Cruisers, First Division.—Start, 2:45; course, ten miles.

Kitsix, F. D. Green.....	3:42:42	0:57:42
Respite, Dr. V. C. Pederson.....	4:17:19	1:17:19
Alisbe, G. R. Branson.....	3:57:57	0:57:00
Alabama, J. H. Hoadley.....	3:43:48	0:58:48
Amorita, J. V. Collins.....	4:17:46	1:17:46
Widgeon II, W. H. Martin.....	4:11:52	1:11:52
Anna III, H. Van Dam.....	4:18:15	1:33:15
Caroline, M. F. Dennis.....	4:01:15	1:06:15
Gadfly, A. J. McIntosh.....	Did not finish	
Gracelda, Dr. D. B. Brinsmade.....	4:16:10	1:31:10
Idyllease II, E. H. Morris.....	4:17:26	1:32:26
Isis, Webb Floyd.....	4:10:45	1:25:45
Margo, Russell Dart.....	4:04:55	1:19:55
Migis, Dr. L. H. Gulick.....	4:16:52	1:31:52
Spark II, W. R. Brinkerhoff.....	4:19:05	1:34:05
Spindrift, R. Butler.....	4:00:42	1:15:42
Thistle, J. H. Wallace.....	4:12:46	1:12:46
Folly, Dr. L. O. O'Brien.....	4:31:08	1:31:08
Silvermoot, W. H. Israel.....	4:33:43	1:33:43
Irene, S. H. Becker.....	4:19:31	1:39:31
Osprey II, C. R. Runyon.....	4:08:27	1:08:27
Vagabond, G. C. Campbell.....	4:11:28	1:11:28
Eronel, Samuel Cochrane.....	4:12:25	1:12:25
Hope II, P. K. Hexter.....	4:12:47	1:12:47

Corrected Time—Kitsix, 50m. 37s.; Respite, 51m. 30s.; Alisbe, 52m. 22s.; Alabama, 53m.; Amorita, 55m. 30s.; Widgeon, 54m. 29s.; Caroline, 55m. 55s.

Class 4, Semi-High Speed Boats, Fourteen to Twenty-two miles.—Start, 3:15; course, fifteen miles.

Sisput, W. H. Hendricks.....	4:20:30	1:05:30
Flinders, R. Rice.....	Did not finish	
Ink, V. E. Ridder.....	Did not finish	
Lady Betty, G. N. Moran.....	Did not finish	

The New Bedford Yacht Club, New Bedford, Mass., held races on May 30, with motor boats in two classes, taking their handicaps at the start. The summary:

CLASS B, OPEN MOTOR BOATS.

Pansy, F. Andrews.....	2:17:40	3:06:08
Parthenia, H. E. Converse.....	2:39:40	3:08:20
G. R. Wood.....	2:15:00	3:08:47
"23," C. W. Baker.....	2:22:50	3:10:06
Bertha W., Grimshaw.....	2:40:40	3:14:48

CLASS C, CRUISERS.

	Start.	Finish.
Irene, F. R. Pease.....	2:45:00	4:09:10
Sayonara, H. W. Ellison.....	3:10:00	4:22:18
Frances, E. M. Stocum.....	3:06:40	4:22:21
Thistle, T. B. Akin.....	3:01:40	4:23:27
Jule, F. Lorraine.....	3:05:00	4:23:51
Spartan, F. W. Deane.....	3:05:50	4:24:03
Isabelle, G. R. Wood.....	3:05:54	4:24:17
Verisimo, G. E. Sylvia.....	3:02:40	4:24:40

The judges decided that the discrepancy between Irene's actual and theoretical speed was too great, she was disqualified, and Sayonara was declared the winner of the cruiser race. The handicaps had been figured from speed shown in trial runs before the race. The course was nine and one-half nautical miles.

The Burlington Launch Club, Burlington, Iowa, is planning for a busy season on the river. Among the events scheduled are a cruise to Dallas City on July 16, cruise to Oquawka on August 27, and a regatta on Labor Day. The last cruise of the season is set for November 5.

The Hartford Yacht Club, Hartford, Conn., has opened a new boat house on the Hartford side of the Connecticut River, between the State Street pier and the bridge. The formal opening came on May 30, when races were held. The club's cruise will take place during the early part of August.

The Hudson Boat Club, South Yonkers, N. Y., went into commission for the season on May 30, when a dinner was given in honor of the officers and members of the Peekskill Motor Boat Club.

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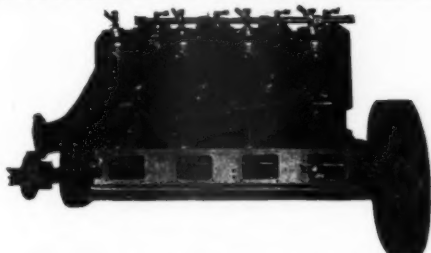
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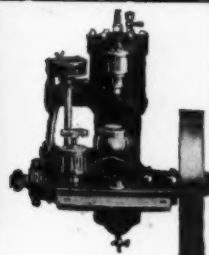
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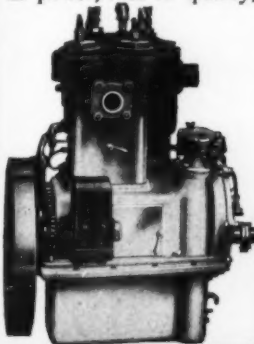


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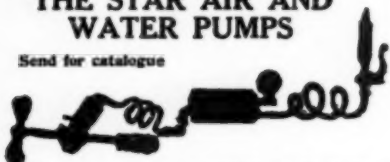


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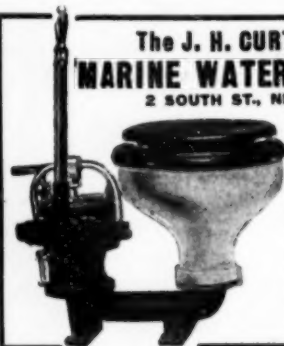
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(Continued from page 11.)

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space, and two upholstered seats also used for
stowage.

On the port side of the passage, and con-
necting with the stateroom is the owner's bath-
room, having tub, toilet, wash basin, linen
locker, and provided with hot and cold run-
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room are tiled.

On the starboard side of the passage, oppo-
site the owner's bathroom, is a stateroom, 11
feet in length, having berth with drawers un-
der, bureau with plate-glass mirror, wardrobe,
desk and seat. This stateroom connects with
another bathroom similar to that of the owner,
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of large dimensions, fitted with all conveni-
ences. Back of the stairs is a large linen
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the vessel, having two built-in berths, two
wardrobes and chevel glass on the bulkhead,
making it a very attractive apartment. Aft
this room, on the starboard side of the ship, is
another bathroom; also connecting with the
after stateroom of the vessel, which extends
the full width, has two built-in berths and
commodious wardrobes.

On the port side of the ship, opposite the
bathroom just described and connecting with
the two large staterooms, is a lobby having a
comfortable lounge that can be used as a berth
if desired. From this lobby an additional
stairway runs to the upper deck, providing
means of communication to these after state-
rooms without the necessity of using the stair-
way into the deck house.

A resume of this arrangement shows that
La Belle contains in her owner's quarters
three double staterooms, each full width of
the vessel; two large single staterooms and
three large, well appointed bathrooms; each
stateroom having adjacent a bathroom for its
use.

Forward of the engine room bulkhead, the
first compartment is used as a mess-room and
store-room, having in it a large icebox for
the storage of ice and provisions. This room
connects directly with the galley. A central
passageway runs forward from this room, hav-
ing on each side two staterooms, providing in
all accommodations for six officers. These
staterooms are fully equipped with seats,
wardrobes, bureaus and other conveniences.
Forward of this passage again is the forecas-
tle, having accommodations for four deck
hands, and opening into a toilet-room in the
forward end of the vessel, supplied with wash
basin, toilet and showerbath for the crew. It
will be seen that the crew, as well as the
owner, is well taken care of, and the result is
one sure to give unusual satisfaction to all
aboard.

Special attention has been given to the mat-
ter of design and finish of the interior of the
various compartments. The general character
of the work below is Colonial, the doors,
berths, fronts, bureaus and furniture being in
mahogany, while the deck overhead, partition
bulkheads, etc., are finished in white. The
hardware is in Colonial design, door knobs
being of glass.

La Belle left the Camden shipyards early in
June for the lakes, going by way of Nova
Scotia and up the St. Lawrence, by the Wel-
land Canal route to Cleveland.



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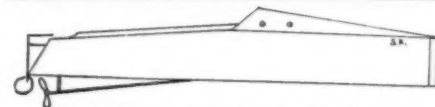
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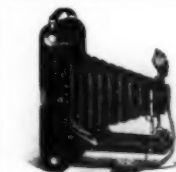
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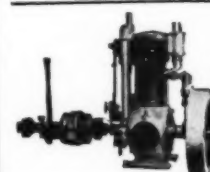
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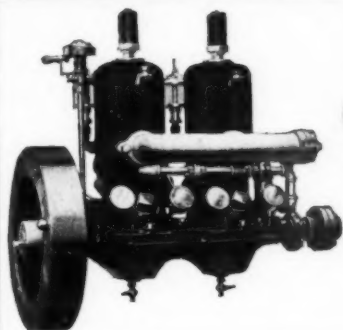
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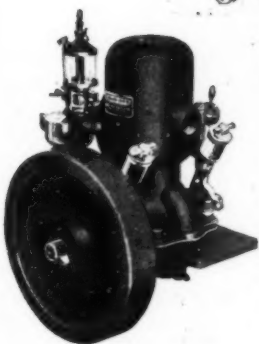
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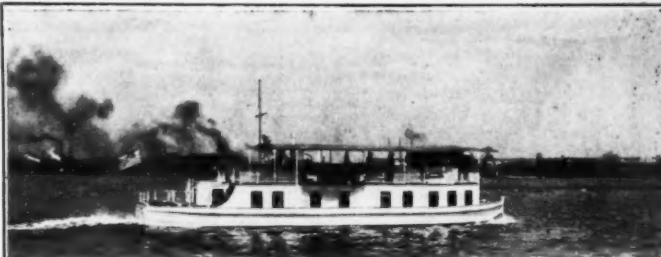
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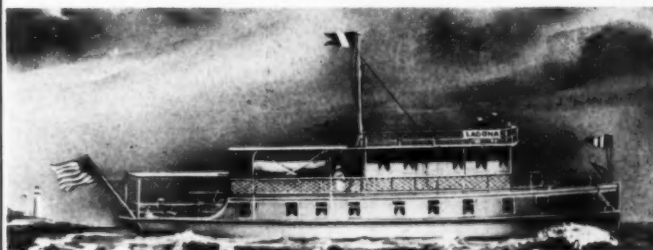
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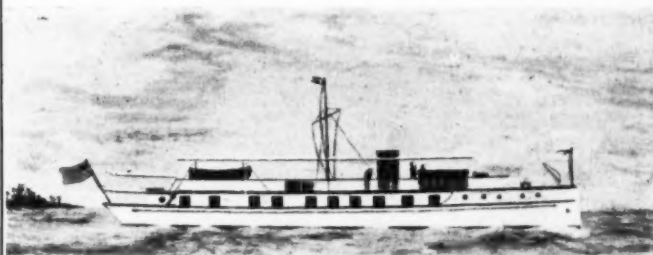
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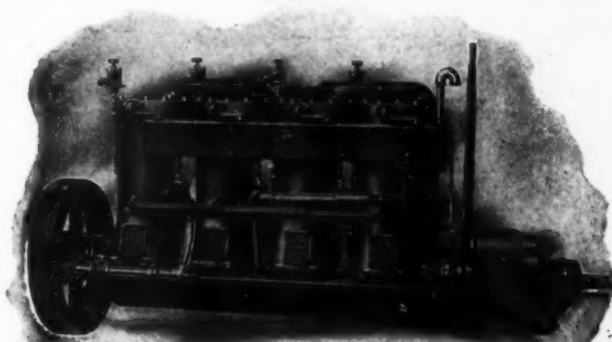
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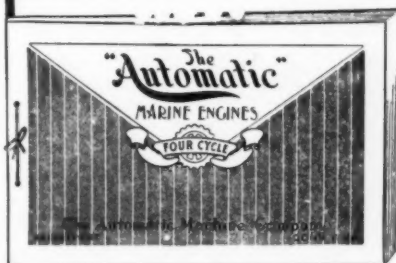
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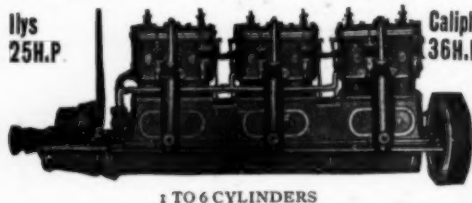
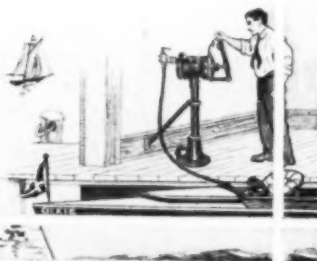
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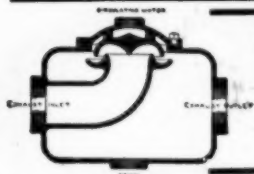
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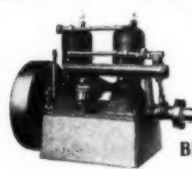
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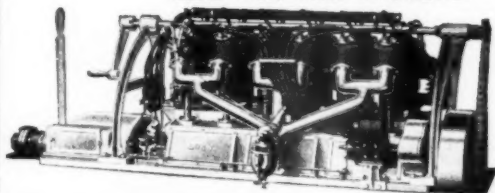
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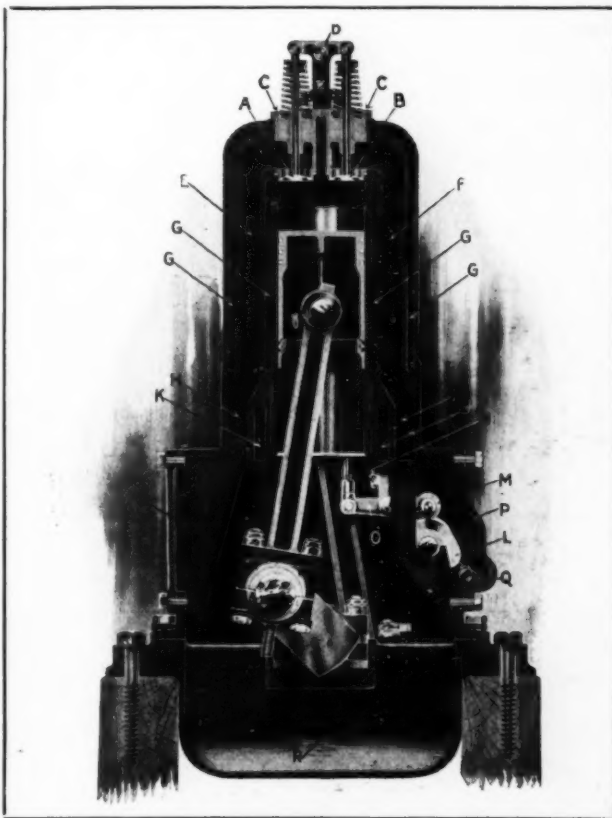


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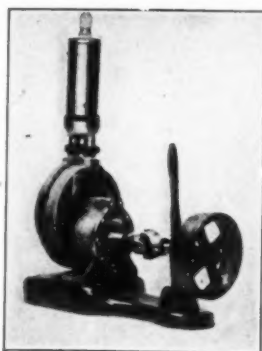
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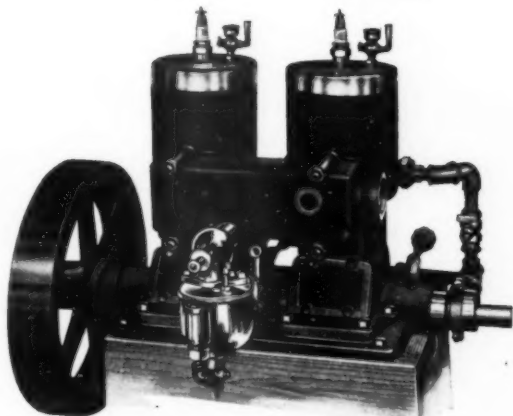


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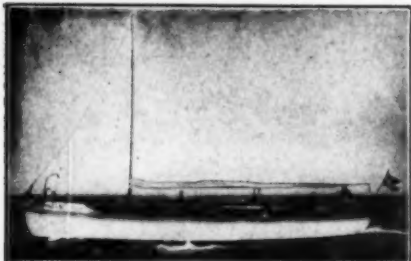
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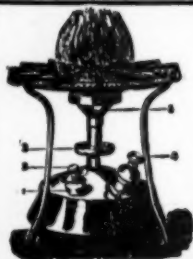
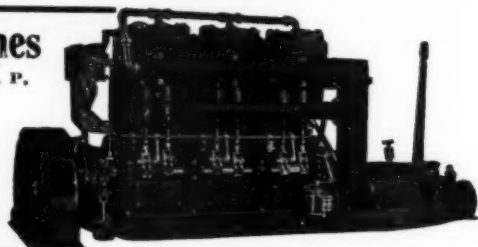
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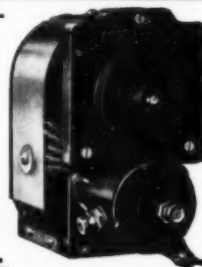
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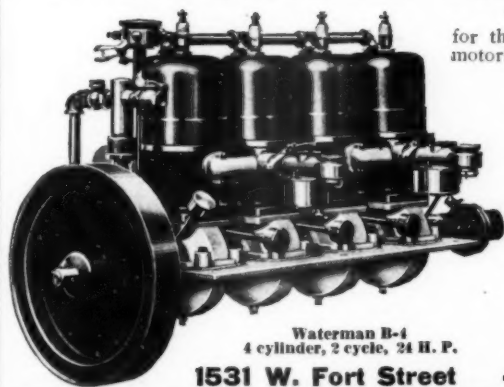
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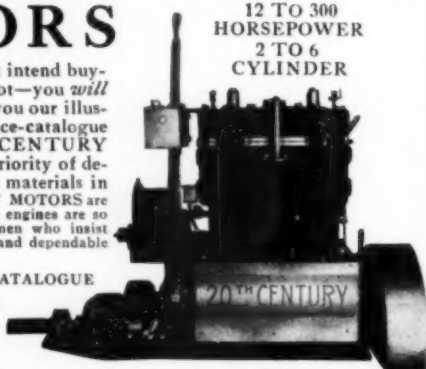
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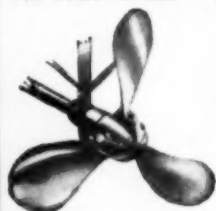
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This cord is patented by us. Patent Number 689,662.

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Our Tiller Rope is a combination of bronze wire and the best grade of flax yarn. It cannot shrink or stretch, will not rust, and is perfectly flexible. The ultimate cost is less than any other material used. It will outwear wire rope under almost any ordinary working conditions.

The flax yarn that we use as a covering is waterproofed before braiding, therefore insuring a waterproof cord throughout, and is impervious to weather. The bronze centre is made under a special analysis and we know that this will give greater service than anything used for the same purposes under similar exacting conditions.

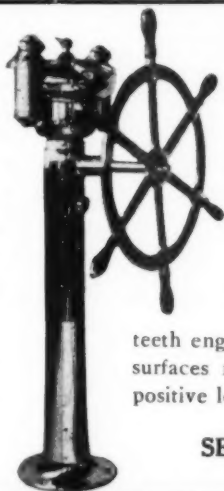
Made in Sizes 1/4, 5/16, and 3/4 Inch Diameter. Put up in Coils of 1,000 feet each.

If you cannot obtain our Tiller Rope from your dealer let us know and we will mail samples, quote prices and furnish any and all information desired. We are also manufacturers of all lines of Cordage, Special Manila Yacht Rigging, etc. ESTABLISHED 1785

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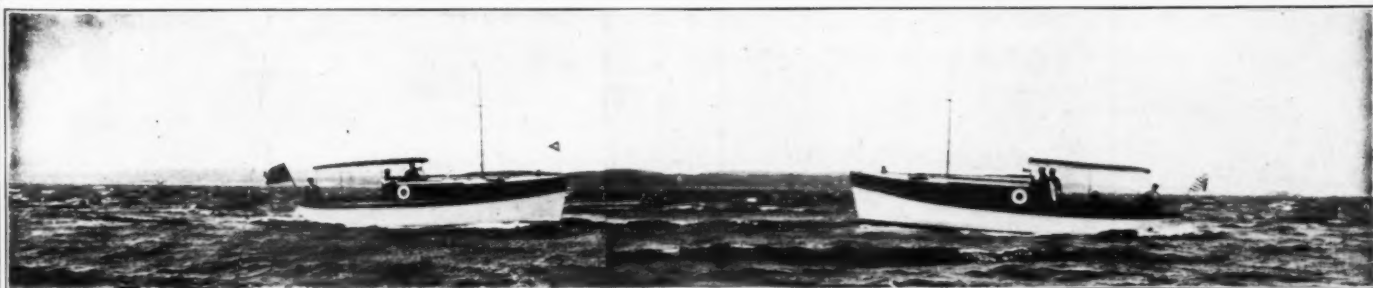
Built in 26 different types for boats from the smallest to the largest afloat. Made with or without controls.

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with wheels removed to show regular and reversed cases for inside or outside of bulkhead or bolted to keel or under floor or deck with long post and column. Equipped with spoke-wheel, auto-wheel, or crank for side-steerer. Chains may also be rove in one end and out of the other, same as auto type, or at right angles to each other.



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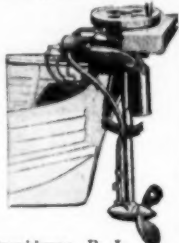
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T & M MARINE ENGINES

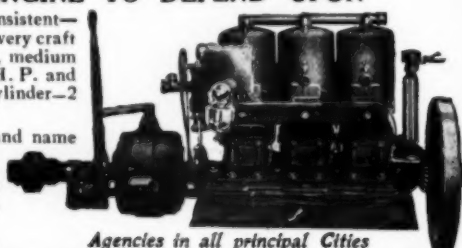
are built for more than ordinary service. Rough seas will not strain or hamper them. Users when purchasing a new engine of different capacity almost invariably specify the T. & M.

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Boats In All Stages of Construction



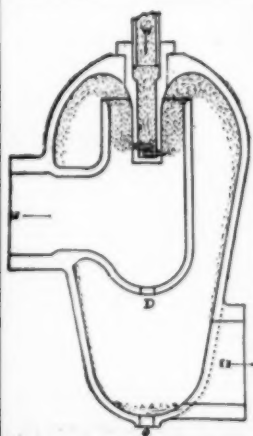
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We build boats of all sizes and types. We build them and ship in knock-down frames, complete hulls or complete boats fully equipped all ready to run.

You Can Build Your Own Boat.

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You will enjoy building your own boat from frames or patterns by our method. We supply you with frames you can assemble without boring a hole or cutting a shaving. Our "NIAGARA QUALITY" frames are years ahead of all others. They are designed by the best naval architects and are perfection in every detail. Our models, in competition, both for speed and seaworthiness are considered by owners everywhere to be the best in the world. Let us show you what we can do. Your interests demand a copy of our catalogue. Send 5c. for mailing. It means money and satisfaction to you. Write us.

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Will Generate Electricity for Ignition and Electric Lights, Charging Batteries, etc. Suitable for all types and sizes of Gasoline Engines.

Jump Sparker and Make and Break. Water and Dust Proof. Fully Guaranteed.

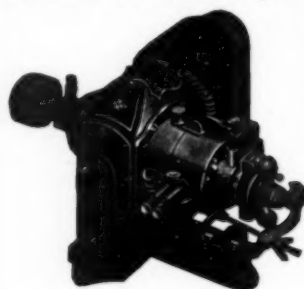
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Let us tell you how to make your own electricity for both ignition and lighting.

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BEILFUSS MARINE MOTORS



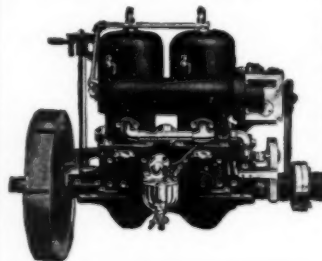
Of the two cylinder opposed four cycle type. The Motor which is surprising the boat owners in every locality wherever introduced, on account of their compactness (can be placed under seat in so desired), economy of fuel consumption, non-vibrating qualities, and their perfect reliability. When supplied with a good spark and plenty of gasoline they will run until stopped. The owners of Beilfuss Motors are our best advertising medium. Why? Because they cannot say too much in their praise. Write for circular describing our 1911 style motors. Thousands of unsolicited testimonials on file to prove the above claims.

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NOT light enough to be freakish. Not heavy enough for ballast, but both light and heavy enough for good hard work in either a racing, pleasure or working boat. A common sense engine with material, workmanship and price to match. Simple and reliable. It is not necessary to be an engineer or mechanic to operate a L-A motor, for we



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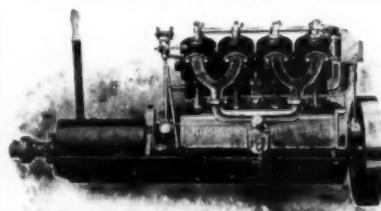


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4 Cycle in 2, 4 and 6 Cylinders, 5 to 90 Horsepower
FOR CRUISING, RACING, FISHING, FREIGHTING

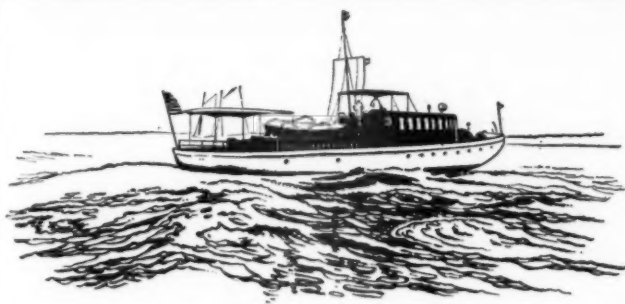


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Do you thoroughly understand the cause of carbon deposit?

The explosions in the combustion chambers burn up the lubricating oil left on the cylinder walls. Most oils in burning leave a hard residue—carbon deposit.

It is a trouble maker. It fouls the exhaust valves, spark plugs and piston rings.

The carbon cakes on the piston head and becomes red hot. Premature explosions follow. They rack the engine, loosen the bearings of the crank shaft and connecting rod and cause pounding.

Occasionally the carbon deposit chips off from the piston head and grinds between the piston rings and the cylinder walls. This scores the cylinder walls.

For years we have been laboring to eliminate the carbon-forming elements from lubricating oil. The result is Polarine.

Polarine

Polarine is the most efficient gas engine lubricant yet produced.

IT LEAVES NO APPRECIABLE CARBON DEPOSIT. Its consistency or "body" is not materially affected by either high or low temperatures. As an automobile lubricant it is in a class by itself.

The Polarine brand covers: POLARINE OIL, sold in sealed cans, gallon and five gallon sizes; or in barrels and half-barrels.

POLARINE TRANSMISSION LUBRICANTS, for transmissions and differen-

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POLARINE FIBRE GREASE and POLARINE CUP GREASE, the former of high melting point, especially adapted to use on universal joints. Sold in round cans.

All dealers sell Polarine Lubricants or can get them for you. If you own a motor car or motor boat, send for our booklet, "Polarine Pointers."

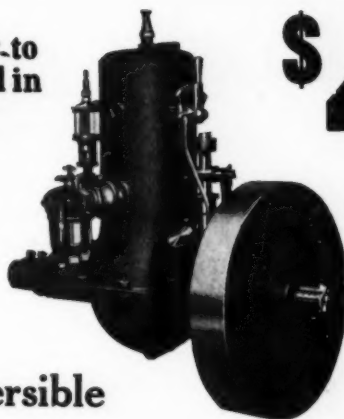
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Standard Oil Company

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Marine Engine Sensations— and Extraordinary Selling Plan

Ready-to
Install in
Your
Boat



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2 h.p. Engine
Complete

Shipped complete with
Shafting, Propeller,
Stuffing Box, Ignition
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Reversible

4 H. P.
\$63.75

Extraordinary value—develops more than the rated horse power—wonderful efficiency and control—especially adapted for hulls from 18 to 21 feet in length—the most popular engine in America to-day—complete at this startling price, including all equipment and a Shebler Carbureter.

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They are easy starting—smooth running—durable—flexible—most wonderfully efficient engine on the market. Built in a well-equipped, modern factory, with an enormous output. Engines always ready for immediate shipment. Can be speeded up or slowed down for fishing or trolling.

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Northwestern Engine has patented features found on no other motor. Special gas-tight bearings make it easy to start, no matter how long it is run. This is the greatest improvement in two-cycle construction in a decade, and is a feature found only on Northwestern Engines.

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Confidence in our engine prompts us to put it up to our engine itself to demonstrate that our claims for its efficiency are not exaggerated. We ship the engine on absolutely 30 days' free trial, and if it is unsatisfactory at the end of the 30 days, money will be refunded without any quibbling. We make this offer unconditionally. Write for our startling proposition. You do not need to send us one cent.

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We want every independent Boat Builder and Dealer to drop us a postal who is ready to make a profit-sharing alliance with one of the strongest financially and most progressive engine manufacturers in the country. Get our confidential dealers' prices and agency proposition.

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My boat is ft. long.

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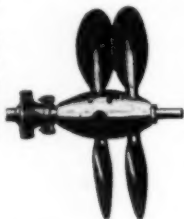
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To buy an engine and a propeller that you fancy, then a different propeller, then heavy reverse gears which necessitate a bigger engine—all this costs unnecessary money.

THE ROPER SAFETY PROPELLER

is complete in itself. It requires no auxiliary equipment. Once installed, your boat is under absolute control and you get the maximum of pleasure and service from it.

The Roper Safety Propeller gives you any speed, from absolute rest to full speed in either direction, on the instant, by the operation of one controlling lever, without affecting in any way the action or requiring any adjustment of the engine.

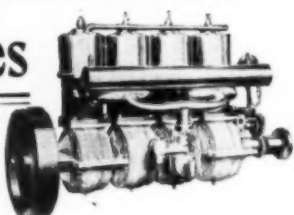


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For **SPEED, PLEASURE**
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This picture shows one of our 45ft. cabin cruiser frames ready to take apart and crate for shipment. Everything is done right up to the point where planking is to be put on. One man can re-assemble this frame and have it ready for planking in six hours' time. Any man, experience unnecessary, can finish this boat and fit it with power for less money than he would have to pay for the cheapest 25ft. cruiser offered by any manufacturer of completed boats to-day. We carry a full line, from the canoe to the 65ft. cabin cruiser.

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You may not have time to build your own boat. Cabin cruisers are our specialty. Write us and we will convince you that other manufacturers cannot meet our prices on finished boats. Let us quote on your specifications for a boat of any type.

The superior excellence of our designs; beauty, seaworthiness, and speed in our boats; and a square deal and popular prices have brought us in the past five years from a small, unknown factory to rank among the largest and best known builders of both knock-down and completed boats in the land.

We make a specialty of knock-down frames for large cabin cruisers, but as a result of our frame business, can quote prices on finished cruisers that cannot fail to interest.



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ALL THE LIGHT YOU WANT WHENEVER YOU WANT IT

Put a **NEVEROUT SEARCHLIGHT** on your boat, back it with

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SIZES, 3-16 inch to 5-8 inch diameter
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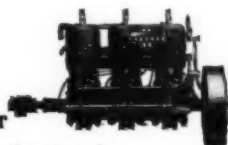
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ROTARY WHISTLE BLOWER

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Its much longer life makes **PACKARD CABLE THE CHEAPEST.**
THE PACKARD ELECTRIC CO., 322 Dana Ave., Warren, O.

The efficiency of your gas engine and the machines which it operates all depends on the unfailing reliability with which that little blue spark can be delivered to the cylinders—and the way to make sure of that reliability is to use the

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There is no more reason in using a cheap, inefficient or unreliable ignition battery than in building a house on a cheap foundation. The chief difference is that the man who has built his house on a cheap foundation can't pull the foundation out from under his house and supply a good one—while the man who is using inefficient or unreliable batteries *can* yank them out and throw them away, when he wakes up to the fact that his ignition isn't what it should be—and supply the Edison BSCO.

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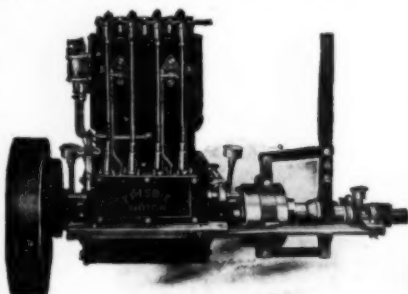


for this complete 16-ft. Launch—3 H. P., guaranteed self-starting Engine, weedless Wheel and Rudder. Result of 30 years' experience. Money back if not as represented. Write for free catalog to-day. Special Bargains in **WECO** reversible, self-starting engines to those building or buying their own hulls. Engine controlled by one lever. Don't fail to write at once for the **Free Catalog**.

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An iron-bound guarantee that safeguards you from loss goes with every Frisbie Motor sold.



Two Cylinder Frisbie Motor

The Frisbie Motor is made in one, two, four and six cylinders, ranging from three to **EIGHTY** horsepower—four cycle.

It is simple, having all valves in the head of the cylinder. That means power.

In materials and workmanship, as well as design, it is second to none.

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THE PERFECT DINGHY

Is the Hyde Metal Dinghy.

Can't sink; won't dry out or become water soaked; always ready for use.

Tows exceptionally well and has good carrying capacity. Carries 5 people; weighs 125 lbs.; costs \$35.00.

Agents wanted.

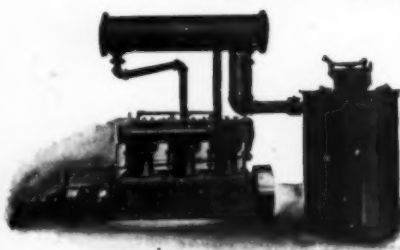
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The Cheapest and Safest Marine Power



Operates on many of the good makes of four cycle gasoline engines at one eighth the cost. 25 to 5,000 H. P. sizes. Our catalogue tells you how to use and all about it. We guarantee results.

Marine Producer Gas Power Company

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"Sand's" Marine Sanitary Fixtures

EASY ACTING, SAFE AND RELIABLE



The "Arbutus" Pump Water Closet, with Vitro-Adamant oval flushing rim pedestal bowl, having a retil chamber; composition combined supply and waste pump, with composition self-closing foot valve. Oak or cherry cabinet finished seat and cover, nickel-plated brass reinforcing seat band and rubber bumpers, heavy nickel-plated brass post hinges. Weight: net, 100 lbs.; gross, 170 lbs.

Pump and fittings polished and nickel-plated all over; white enameled iron base plate. \$115.00

Pump white enamel, with nickel-plated trimmings, enameled iron base plate. 110.00

If with mahogany seat and cover, add. 2.00

The new piston gear makes this a very easy acting fixture. The composition foot valve is simple in construction, with few parts to get out of order.

Catalog "R" free upon application

PLATE S-20

1849

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Largest Manufacturers in the World of
MARINE PLUMBING SPECIALTIES
22-24 Vesey St., New York, U. S. A.

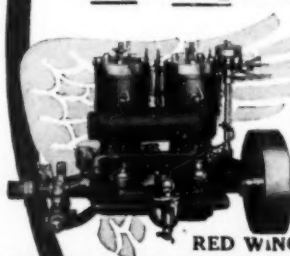
1911

"If You Want to Move

When You Throw On the Switch, Install a Red Wing"

is the advice of one of our customers to everyone owning or about to purchase a motor boat. If you want a motor that "is very simple to control," "works like a charm," "runs fast on very little oil and always runs," "runs very smooth" (a few quotations from the hundreds of letters on file), in short a trouble-proof engine—investigate the

Red Wing Standard 2 Cycle Motor

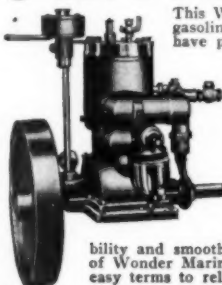


shown here. It is made with 1, 2 and 3 cylinders—3 to 15 H. P.

Other Red Wings, including motors for high speed work and motors up to 80 H. P., and also the classy up-to-date reliable Red Wing motor boats (equipped with Red Wing Motors) are fully described in the beautiful **Red Wing Free Motor Boat Book**. Don't buy a motor or motor boat anywhere until you get this book and read the information on page 20. It's important to motor boat enthusiasts. Write to Dept. C 1.

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The Speediest, Surest 5 H. P. Engine Ever Built



This Wonder engine is the smoothest running, most powerful gasoline engine ever used to turn a propeller. Hundreds have proven it a wonder in easy and *always* reliable operation, strength and durability.

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Wonder Engines Guaranteed for 5 Years

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We make engine from 2 to 75 H. P. There are more than 3,000 in use in this country, all producing the highest degree of efficiency, durability and smooth running at a minimum of cost. Send for catalogue of Wonder Marine Engines today. Prompt shipments. Get our plan of easy terms to reliable parties.

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Combination Cabin Outfits
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HERMETIC CASE
Protect your battery, will save its cost many times over
Six Cell case \$3.50

HAVE YOU

ever met with an accident in cranking
your engine?

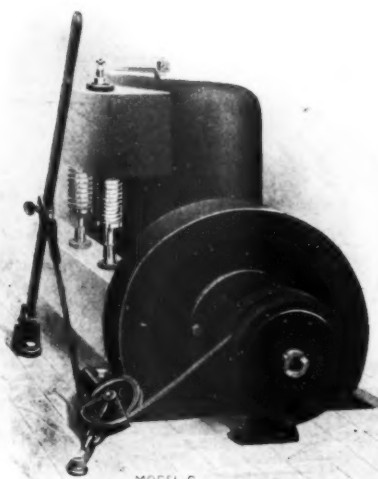
DO YOU

use a bar for cranking your engine?

Has it ever occurred to you what MIGHT happen either to you or to your boat, if the engine should "backfire?" Why not guard against those possibilities by equipping your engine with the



Safety Gas Engine Starter



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May 17, 1911.

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New Milford, Ct.

Dear Sirs:

In looking over the May Rudder I noticed the list of prize winning and championship yachts mentioned in your advertisement.

Would like to state that the Ardetto, Manhasset Bay 20-footer, owned by Clarkson Cowl, and the Manhasset Bay Bug boat, Dragon Fly, owned by myself, used your paint only throughout the 1910 season, and both won the Long Island Yacht Racing Association championships in their respective classes.

I attribute this to your paint to a great measure. Both Mitchell's Non-Fouling Green bottom paint and Topsides were used.

The Ardetto had your paint on during the season of 1909 when she won the championship.

The Dragon Fly won 15 prizes out of 17 starts, and had a championship rating of 83.01.

The Ardetto won 21 prizes out of 28 starts, and had a championship rating of 68.75.

I thought these facts would interest you.

I expect to use your paint again this season. Hoping for your continued success, I am,

Yours truly,

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**Medium Duty Marine Engine**

Note the Doman aluminum cover on reverse gear "T-head" cylinder; and with its other features is, up to date in every particular. All parts are accessible. It is evenly balanced easy to understand. Engine here illustrated is 3 cylinder 15 H. P. Medium Duty. Other sizes from 5 H. P. to 75 H. P. We deliver each engine complete with Magneto. Force Feed Oiler. Propeller, Shaft, etc. Catalog free—when shall we send yours?



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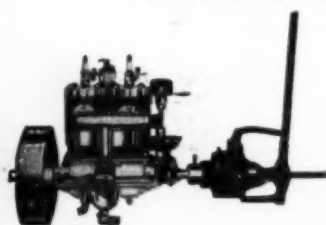
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Brown Canoe Engine
Weight 60 lbs., 3 h. p., 100-1200 revolutions
Write us today.

Don't purchase until you have read in the *Brown Catalogue* what a really good motor consists of, made in sizes from one H. P., one cylinder, to 80 H. P. six cylinders.

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until you get our 1911 ENGINE CATALOG mailed FREE****Weco Engines**

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There are no extras; every engine shipped ready-to-run; 5 to 75 horse power, 250-850 revolutions per minute.

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Special Search Lights for Yachts and Power Boats

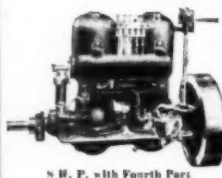
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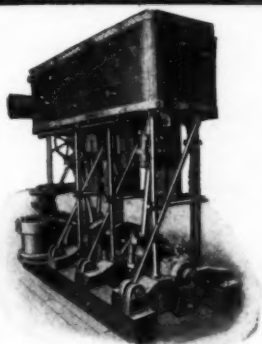
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The 8 H. P. Motor shown with the Fourth Port is sold at a special price to demonstrate everywhere the great value of the Fox Fourth Port.

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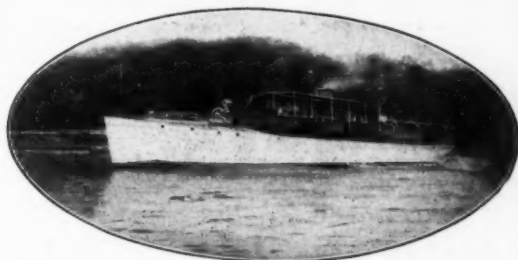
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Gas Engine & Power Co.
(and)
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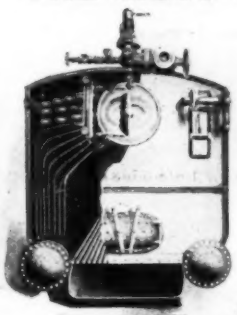
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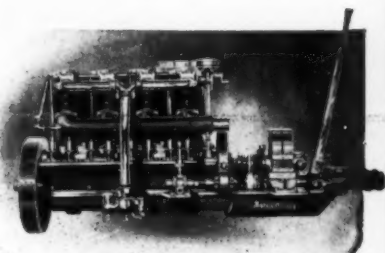
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ALL SIZES.

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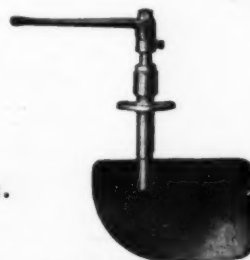
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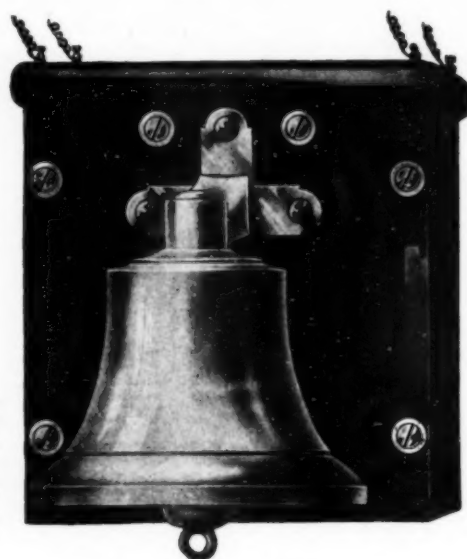
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Size of Bell	Price List
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*Guaranteed to
Increase Speed 1 to 3
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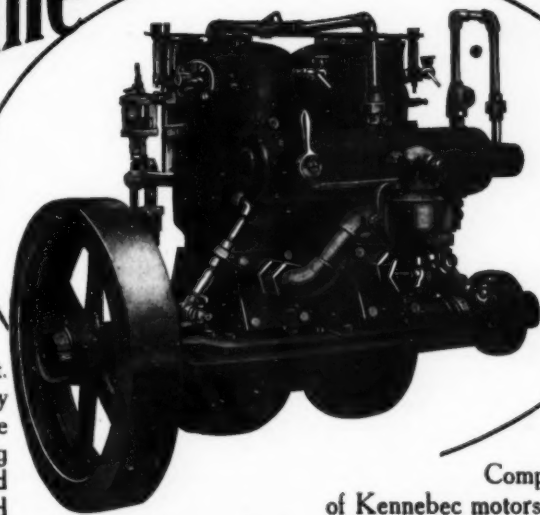
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Compare the bores and strokes of Kennebec motors with those of any other marine engine of the same horsepower.

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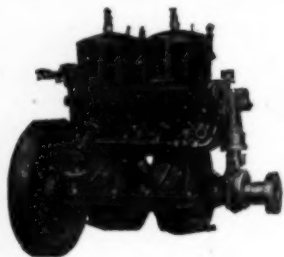
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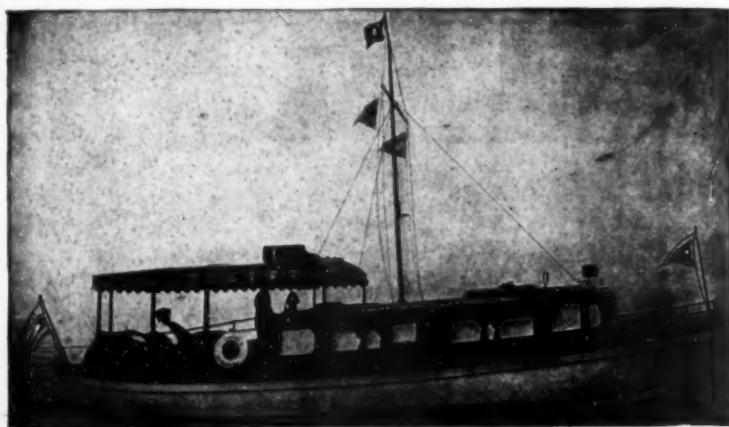
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The double cylinder motors are remarkable engines on account of the power they will develop and on account of the low price at which they are sold.

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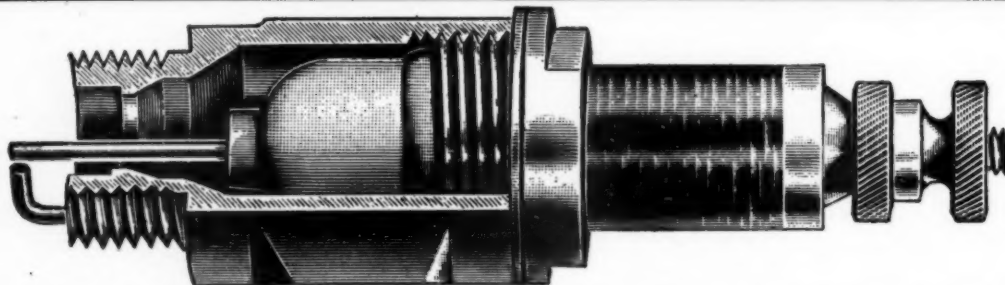
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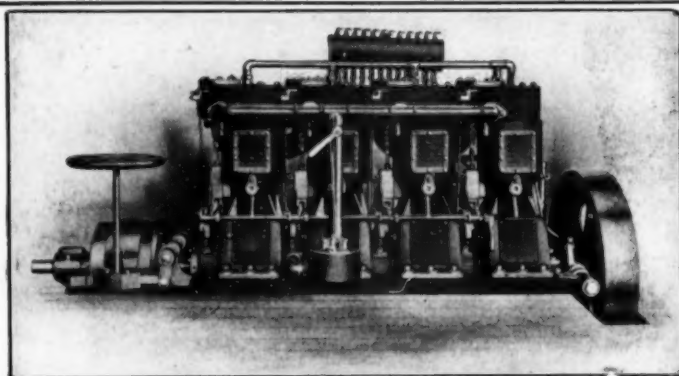
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The Most Important Motor Boat Race Held in This Country Was
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18 feet long.
Seats 8 people.
Fully equipped.
All ready to step
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MAY 5, 1911.

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The boat has been in service on the Great Lakes, and especially in the neighborhood of my summer home near the Soo, on Lake Superior.

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Yours respectfully,
(Signed) H. A. PARSONS.

The ultimate economy of an investment for pleasure is measured by the extent to which it pleases the owner.

Our new catalogue is yours for the asking

THE MATTHEWS BOAT COMPANY : : Port Clinton, Ohio



PRONTO III AT 28.07 M.P.H. EQUIPPED WITH A ROBERTS 6 CYL. 60 H.P. MOTOR

NEW WORLD'S RECORD

of 28.07 M. P. H. for 20 ft. Displacement Type Boats at Peoria, Ill., on Decoration Day

ESTABLISHED BY

Pronto III, equipped with a 6 cylinder Model 6P-60 H. P.

ROBERTS MOTOR

THE MOTORS THAT NEVER BACK FIRE

Beating the previous record of 27.3 established by Comet on Aug. 29th last. Roberts Motors are GUARANTEED FOR FIVE YEARS and represent A REAL MONEY VALUE in a high grade motor AT A REASONABLE COST. Built in nine sizes, one to six cylinders, three to sixty H. P.

ALL MODELS IN STOCK FOR PROMPT SHIPMENT

THE ROBERTS MOTOR COMPANY, 1501 Columbus Ave., Sandusky, Ohio

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This Engine Lasts As Long As The Toughest Boat

THE "Perfection" is essentially the longest-lived marine motor built. It just thrives on hard work such as ferrying, towing or big pleasure jaunts and keeps at it year in and year out without a murmur. It needs hardly any attention. With a good flow of gasoline and a lively spark, it will keep working away at a great old rate and you can fold your arms, lay back and enjoy yourself.

"Perfection" Marine Motor

The "Perfection" is all its name implies right down to the most insignificant detail. It is simple and has comparatively few parts but every detail has been closely scrutinized and brought to a state of perfection making improvement impossible. The "Perfection" therefore runs smoothly, is powerful and yet easy to operate. Any man, woman or child can run it without effort.

Experienced users of engines at once recognize in the "Perfection" the ideal qualities. They enthuse over the fact that there is no excessive vibration or "pounding." All you hear is a steady smooth purr and you can feel every stroke making speed under you.

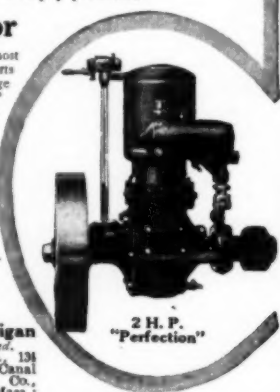
We build "Perfections" in 2, 2½, 3½, 4, 6 and 8 H. P. in the single cylinder engines, also 7 to 30 H. P. in the 2, 3 and 4 cylinder engines.

Prices range from \$40 to \$450 according to type and horsepower. Write for catalog.

Caille Perfection Motor Co.

103 Caille Street Detroit, Michigan

Send for our Stationary Kerosene Engine Catalog if interested.
Engines carried in stock by Bruns, Kimball & Co., 134 Liberty St., New York, N. Y.; Gibbons & Stream, 23 Canal St., New Orleans, La.; Woodhouse Gasoline Engine Co., Seattle, Wash.; Geo. G. McLaughlin Mfg. Co., Boston, Mass.; The Marine Engine Supply Co., Los Angeles, Cal.



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it pays us to have a man who is boosting his business well pleased and satisfied. Our line of boat fittings is without doubt the best offered. Even if you merely want to fit out your own boat, better send for our catalog.

It Pays Us

to make a low price on our goods to a man if he is willing to "root" for us on the quiet. Our line of goods covers everything from a marine light to a propeller wheel. The lights are in sets for government requirements, the wheels are speedy.

It Satisfies The User

to feel that his equipment is worth what he paid for it and when a man listens in vain for the hideous noise which one of our under water exhausts is completely covering up, or finds that AETNA stuffing boxes stick to the boat and don't work loose he is pleased.

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for a good line like this. If you are a boat owner, an engine builder, a boat builder or just a motor-boating enthusiast it certainly will be to your advantage to immediately

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We pay good commissions and our plan to get a set of fittings for your boat to demonstrate with will surely interest you. "DON'T DELAY, WRITE TODAY."

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WHEN YOU ARE THIRSTY

WHILE

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LUXRY GRAPE JUICE



MADE FROM LAKE ERIE
ISLAND GRAPES
THE FINEST GROWN IN AMERICA

(Send for the Story of the Island Grapes)

"LUXRY" Catawba is different from ordinary grape juice. It is clear and golden with delightful flavor and bouquet.

HEALTH GIVING FOR INVALIDS

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1 Case of 12 bottles (5 to gal.)	-	-	\$ 6.00
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10 " " "	-	-	50.00

LUXRY Concord (Red juice) 50c. per case less.

Add \$1.00 per case if wanted packed 24 bottles (10 to gal.) to case.

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This coupon, if accompanied with cash, is good until July 15, 1911, for \$1.00 reduction on your bill. **ORDER NOW.**

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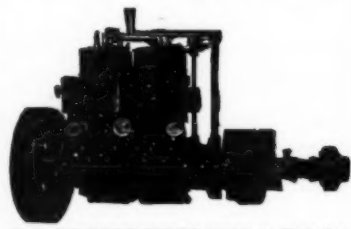
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The Motor that meets All Requirements

WILL run on
Gasoline,
Kerosene or Al-
cohol.

The working Mo-
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the Commercial
boat and the
Cruising launch. Our 1911 catalogue ex-
plains all—shall we send you one?

Have you seen our 1911 Yawl Launch
—made in sizes from 19' to 30'.



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The best and cheapest all-round
Launch on the market. Send for circular.

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THE KENYON CUSHION is the only cushion in the world today bearing this stamp.

In purchasing this, you buy the original life preserving cushion—the best cushion ever produced, and the price remains the same as before the approval of the Department of Steamboat Inspectors was received.

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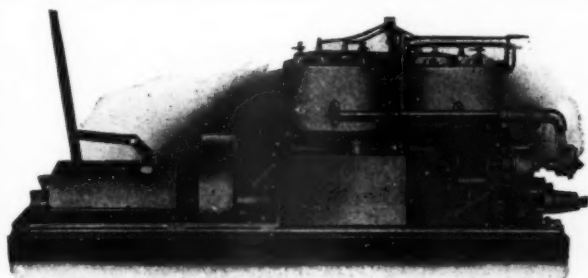
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This Mark



On Cushions
You Buy

THE R. L. KENYON COMPANY

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Oakland
20-32

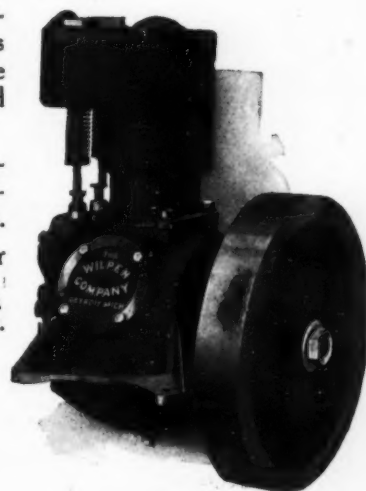
The RIGHT Motor

power. All experts agree that the four cycle engine is by far the most reliable and economical type of combustion motor.

Thousands of Oakland engines are in use, and each and every individual user is a satisfied one. The Oakland 20-32 is accurately machined, every part being interchangeable, and every engine long and carefully tested to find, if possible, any latent defects.

The Oakland 20-32 is trim, compact, and the strongest pulling motor of its inches ever designed. We desire representation everywhere, and have some unfilled territory.

The Oakland 20-32 is lower in price than any high-grade motor on the market today.



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Agents. Ask for catalogue

The BRUSHMARINE
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In word and in picture it describes and illustrates every conceivable need and luxury for water-craft of every sort.

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For Yachting, Motor-Boating or Canoeing Hopkins LIFE PRESERVER CUSHION

is an absolute necessity. It is comfortable and ornamental, covered with durable artificial Spanish leather, filled with non-absorbent Japanese fibre, impervious to water, with four times the buoyancy of cork.

Delivered Anywhere in the U. S. \$1.25

Send for Samples of Styles and Colorings

Special—These cushions can be made up with your club flag or barge embroidered thereon. Write for prices.

We Sell by Post from Coast to Coast. Prices Right. Service Right Away

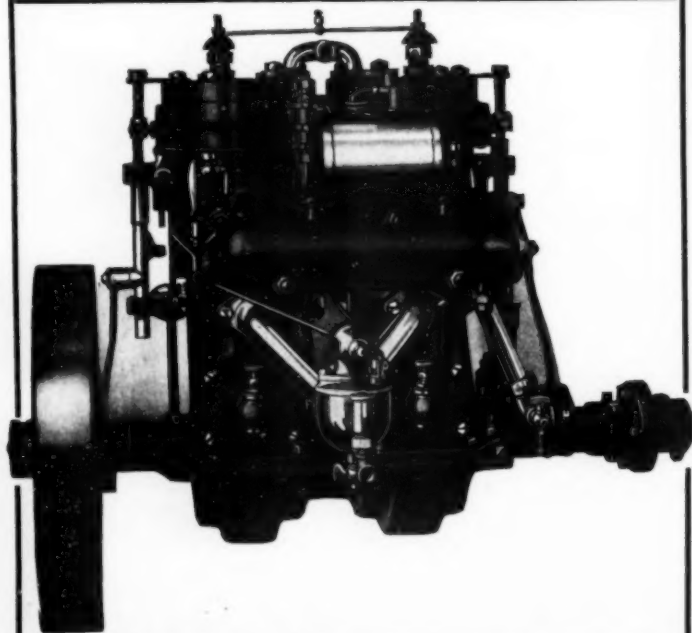
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NEW YORK

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"THE MOTOR THAT MOTES"

Three Port System — One Carburetor — Perfect Control
No Base Explosions — No Stalling — Reliable

PRACTICAL — ECONOMICAL



The BRIDGEPORT MOTOR CO., Inc.
BRIDGEPORT, CONN.

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Dayton Launch Lighting Outfits

Enjoy a Lighted Boat All the Season

Don't wait until the season is half over before you realize how much you are missing by being without a Dayton Launch Lighting Outfit.

Get busy now, and have real enjoyment all the time—night time as well as day time. Have a searchlight, signal lights and all the interior lights you can use. Thousands of motor boat owners gladly testify that they never knew what real light for their boat was until they tried electric lights by this system.

Think for a moment how much superior they are to hot, smelly oil lamps.

They can't blow out, can't run out of fuel, and they are always ready so that you can flood your cabin with cool, brilliant, white light, simply by turning a switch.

Convenient, isn't it?

Starboard, Port, Bow and Riding lights always ready and never blow out. Light them from the cabin. You don't have to crawl along the rail to start them, as so many have to do with oil lamps. We build regularly five different sizes of outfits one of which will surely fill your requirements. If not, we build special sizes to order.

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A Searchlight That Beats Them All.

The searchlight question is answered by our new 1500 candle-power arc outfit. Let us send our latest bulletin describing our searchlight outfit.

Write for our bulletin describing our lighting outfit, as well as our complete line of ignition apparatus.

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Largest Manufacturers of Ignition and Lighting Apparatus Exclusively in the World.

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A REVERSE GEAR IS THE CONNECTING LINK BETWEEN MOTOR AND MOTION

THE Motor Boat man using JOE'S IMPROVED MARINE REVERSING GEAR is always sure that a pull at the handle will cause his propeller to start, stop, or reverse, as desired.

He can be certain of this result because Joe's gear is sure and prompt acting, being built on correct principles.

It has but few parts, compactly and scientifically designed and constructed, and does not drag; but transmits to the propeller the full power and speed of the motor.

Joe's gears may be safely thrown to full speed in either direction without damage to the gears or motor.

Motion is transmitted to the gears through a powerful eccentric which brings a uniform strain on all the gears.

The slow equalized gear motion insures long life and kills all noise and grumbling.

Joe's gears are strong, efficient, reliable and durable.

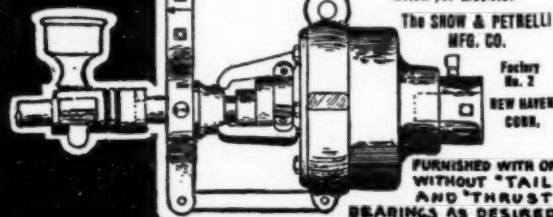
Investigate and compare them with others and you will take no other make.

How Joe's gears came to be what they are and why is worth knowing.

Send for Booklet

The SHOW & PETRELLI MFG. CO.

Factory No. 2
NEW HAVEN
CONN.



A Detroit Oiler is an investment

A Detroit Force Feed Oiler is an investment because it **pays dividends**.

It pays big dividends in the money it saves you.

A Detroit Force Feed Oiler lengthens the life of your engine.

It stops costly repair bills by preventing the injuries and wear resulting from faulty lubrication.



A Detroit Force Feed Oiler **puts money in your pocket** by automatically saving the oil wasted by ordinary lubricators. It soon saves its own cost by cutting down your oil bill.

And it pays big dividends in the added pleasure you get from your outfit.

A Detroit Force Feed Oiler is insurance, and insurance is always an investment.

Invest in a Detroit Oiler today

The satisfaction you get from its use, the increased life of your engine and the money you save on repair bills and oil bills will more than repay you.

There is a Detroit Force Feed Oiler for *every* engine. They are made in capacities from 2 pts. to 5 gallons with from one to 30 feeds. Pulley, ratchet or gear drive.

There is a Detroit Oiler for *your* engine.

Detroit Force Feed Oilers are furnished as standard equipment by manufacturers of high grade gasoline engines.

Others are glad to furnish them.

Specify a Detroit on your next engine and **write today for catalog A-64 and full information.**

DETROIT LUBRICATOR COMPANY.

DETROIT, U. S. A.

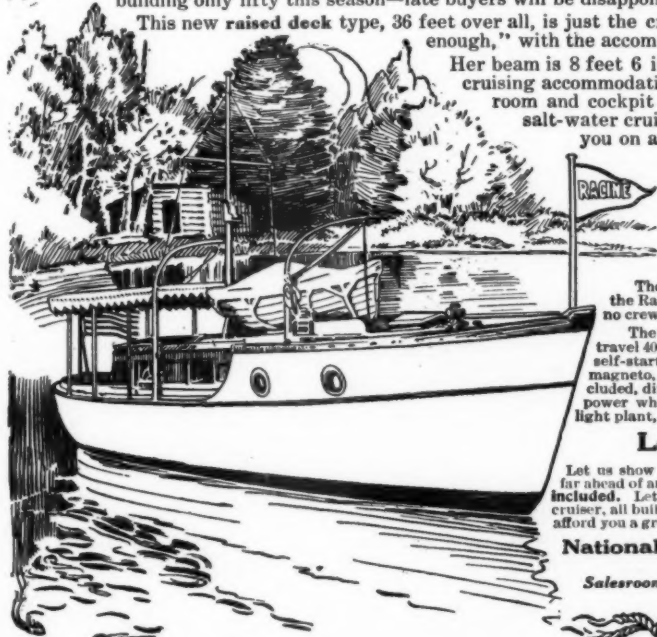
Largest manufacturers of lubricating devices in the world.

You Can Afford This Handsome Cruiser

"As Graceful as a Swan"—"Seaworthy and Comfortable,"—"Generously Built and Dependable,"—"A Cruiser You Can Live in for years"—are some of the comments of the fifty people who bought the fifty Racine-Muskegon Cruisers we built last year. We are building only fifty this season—late buyers will be disappointed.

This new **raised deck** type, 36 feet over all, is just the cruiser the average purchaser considers ideal. It is **right** in size, "big enough," with the accommodations and comforts of a "big boat."

Her beam is 8 feet 6 inches. She will ride in two feet, six inches of water. There are cruising accommodations for eight, toilet room, folding mahogany lavatory, owner's stateroom and cockpit holding ten. The galley is big. There are fresh water tanks for salt-water cruising, ice box, surplus storage and all the comforts of a home go with you on any waters you travel.



RACINE MUSKEGON

The big feature is—with all its comforts, its great ability as a cruiser, its accommodations, the Racine-Muskegon is a "one man" boat. You can handle it and run it yourself. You need no crew. You can go anywhere in it alone.

The gasoline storage tank in the bow holds enough for 400 miles. Note that this boat will travel 400 miles on \$10 worth of gasoline. Her motor is of the latest type, four cylinder, four cycle self-starting—developing 25 to 30 H. P.—with double ignition system, including gear driven magneto, all so simple any novice or boy or girl can handle it beautifully. In the equipment is included, dinghey and davits, lights, screens, standing top, cushions, flags, signal mast and fittings, power whistle, fog bell, life preservers, boat hook, stove, removable table, etc., complete electric light plant, with dynamo—everything that goes with a boat goes with this trim yacht.

Let Us Save You \$2500 on the Price

Let us show you that our great factory, the largest pleasure boat factory on earth, is so well organized, so far ahead of any other boat factory, that we can sell you this \$5,000 cruiser for \$2,500, the **whole outfit included**. Let us show you over a half hundred other models, everything from a row boat to the largest cruiser, all built in the Racine way. Let us send you the story of "The Cruise of the Bonita," which will afford you a great deal of helpful information about boats and engines.

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Mullins Steel Motor Boats

Skim over the water as gracefully as a swallow sails through the air. You're safe in any Mullins Boat, because it's puncture-proof. Hulls built of steel plates make it so.

Mullins Boats can't sink, leak, warp, waterlog, crack, split, dry out, open at seams or be gnawed by worms. Motors are simple—have great power—won't stall—start like an auto—ONE MAN CONTROL—silent under-water exhaust.



Write for Handsome Boat Book—Free—Postpaid

A marvel of the printer's art. Profusely illustrated in colors. A positive delight to read it. You'll be amazed at the low prices. Send today.

THE W. H. MULLINS COMPANY

182 Franklin Street, Salem, Ohio



Complete Line of Row Boats
and Duck Boats, \$22 to \$39

The Survival *of the Fittest*

MAKES MOTORS MAKE GOOD

CLIMAX-SYNOVIA
for Axle
Bearings
and Cups

ENGINE running hot? Pounding? Rings wearing down? Carbon in ports? LOOK TO YOUR LUBRICATION!

To get the maximum results from your engine from the standpoint of lubricating efficiency, you should use

Lubroline Motor Oil in the cylinders and **Climax-Synovia** in the crank bearings and shaft cups

These lubricants are described in our booklet, "The Mission of Lubroline," copy of which will be gladly sent to you on request. Fiske Lubricants sold everywhere by good dealers.

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"Dinner is Served"

in that snug little cabin and each article of food prepared to a nicety. There's a vast amount of satisfaction in cooking upon

PYRO MARINE STOVES

These stoves are especially adapted for marine use. They give the maximum of heat and concentrate it in the proper spot, unaffected by the careening of the boat. They consume very little space, are light, compact, portable, odorless and smokeless.

Pyro Marine Stoves are constructed of galvanized cast iron absolutely rust proof. The burners are cast of brass and the tanks are brass, nickel plated. A guard rail is fitted to each stove to prevent the sliding of cooking utensils.

Denatured Alcohol—the fuel used in Pyro Marine Stoves, creates an immense heat at very little cost.

Get one of these splendid Stoves this season for your boat. You'll be delighted with the results. Pyros are made in one, two and three Burner sizes.

Send for our descriptive literature, including price list, today.



THE ALCOHOL UTILITIES CO.
40 East 21st Street

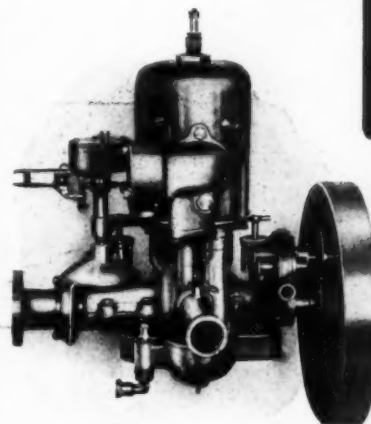
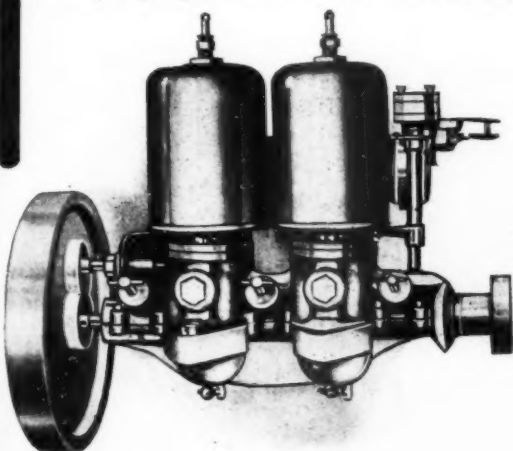
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Small Engines Also

JUST because you have a small boat is no reason why you can not have a Pierce-Budd engine. We make the small sizes as well as the big racers, and if you have not yet secured our free engine book, it will certainly pay you to let us send it at once. Our engine is a very fine, well made, reliable and simple proposition. All the moving parts are encased and protected. The ignition system is the best

to be had. The carburetor is especially designed and you will find this engine to be very much "fool-proof."

We would like to impress upon you the value of a good engine in your boat and can show you why in the end our engine will prove less expensive than some others. We have some good agency territory still open, (not very much, but a little), possibly you are writing from this very territory and we will be pleased to make you a demonstrating proposition on a sample engine for use



locally. We offer good protection to our agents; take care of our customers and are daily proving to many satisfied users that our Bay City factory is the home of ONE GOOD RELIABLE ENGINE.

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Michigan, U. S. A.

Eagle

Above All

in Efficiency

Simplicity

BUT NOT

For the User

THE advent of the 1911 Eagle Engines marks a new era in the development of motor boat engines. No matter how thoroughly you have familiarized yourself with what the market afforded in the past, your education is not complete until you have fully investigated our claims for Eagle Engines.

We have not space enough to tell you our whole story here so all that we can do is to outline our proposition and earnestly request you to write for our catalogue, trusting that every one who is in the market for an engine this year and every one who expects to buy a marine engine in the future will do himself the justice to accept the information we offer free.

Eagle Engines are made in a complete line comprising fifteen sizes in semi-speed and heavy duty models. The range of sizes is so complete that every requirement is provided for where it is possible or desirable to use this type of engine. They are all the highest development of the two-cycle motor, in 1, 2, 3 and 4 cylinders and ranging from 1½ to 25 H. P.

The size, however, does not interest you beyond knowing that we have the engine you need. It is the mechanical superiority you want to know about and that is where Eagle Engines excel. This is perhaps the first opportunity you have ever had to buy an engine of the highest grade in design, materials, construction, finish and equipment, at a price no higher than you pay for ordinary engines.

This is the unusual feature of Eagle Engines—that our facilities now enable us to give you an engine of the highest grade at a competitive price. For years we have been building the best two-cycle engine made and we always sold all we could make, demanding high prices for them. Now we are offering you the same engine, improved and developed to be better than ever and backed by 12 years' experience and reputation for building fine engines.

Fill in the coupon and mail it to us to-day and let us tell you the rest of our story. If you are looking for the most engine efficiency for your money our catalogue will surely interest you.

**The Eagle Co., 98 WARREN STREET
NEWARK, N. J.**

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THE EAGLE CO.
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GENTLEMEN:

Please send me your handsome catalogue describing the complete line of Eagle Engines for 1911. The following information shows the style of engine I require:

H. P. No. Cylinders

Size of Boat:

Length Beam

Type

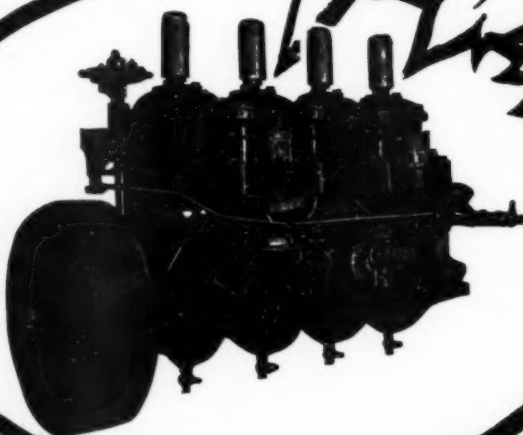
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A Complete
Line of
Marine
Motors of
the Highest
Grade



Engines

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OT PRICE

For the
Dealer

The Best
Line
Any Dealer
Can Handle

MR. DEALER.—Are you looking for the line of engines on which you can build up the *most permanent and profitable* business? We state this question in the superlative degree in order to limit the field in which Eagle engines compete.

There are many qualities required of the line which will make your business most permanent and profitable. We want you to realize how many there are because, one by one, other lines will be dropped from your consideration until Eagle Engines stand alone.

The permanence of your business depends upon whether your customers derive lasting satisfaction from the engines you sell them. It depends upon whether the manufacturer you make connections with is firmly established so that he will protect you and give you proper support in the future as well as at present.

The gross profit of your business depends more upon the number of sales than upon the margin of profit. While the profit on Eagle Engines is about the same as any other, Eagle dealers and agents make greater profits because the line is easier to sell,—they make more sales. An engine in which your customers can see the quality, in every detail, cannot help but sell, especially when the price competes with engines of ordinary grade.

Eagle engines are good enough to back up every statement and guarantee you want to make. They will not get you into trouble with customers by giving poor service as soon as the newness is worn off. They have clever features and forceful talking points that appeal to every customer and then they have the quality of design, materials, and workmanship—the backbone,—to stand up and make good after they are sold.

Their finish and equipment is the best throughout. And being a complete line embracing all sizes, you are not up against the proposition of carrying and recommending several makes and types of engines for different purposes.

If you want to bring us to a show-down—to get us away from the generalities we are limited to in this advertisement, send us this coupon and we will write you a personal definite proposition for the sale of Eagle Engines.

THE EAGLE CO.

98 WARREN STREET
NEWARK, N. J.

DEALER'S
COUPON

THE EAGLE CO.
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Newark, N. J.

GENTLEMEN:

Please send me your handsome catalogue describing the complete line of Eagle Engines for 1911, together with information as to your selling plan and dealers' proposition.

Territory desired

Name

Address

City

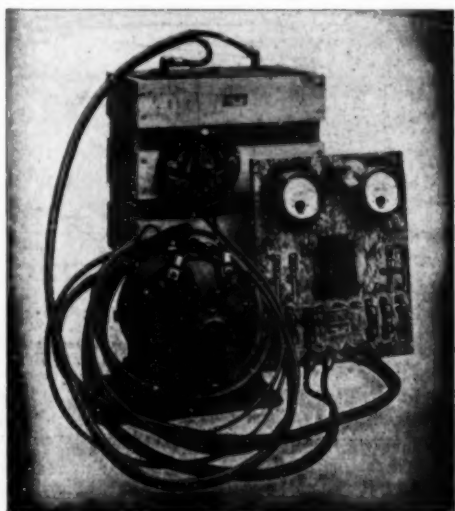
MOTOR
BOATING
66

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Franklin was a discoverer.
Edison is a wizard.

Schug

is a manufacturer of Coils, Batteries and Electric Lighting Outfits who has gained by others' experience, and by concentration and expansion of his electrical mind has accomplished how to light a Motor Boat brilliantly, economically and safely "THREE MINDS IN ONE" have accomplished these wonderful results that are especially of benefit to Motor Boats from the largest Cruiser to the smallest Runabout.



Schug lighting outfit equipped with automatic cut-outs

Have You a Cruiser?
Have You a Runabout?

if so

Schug

will gladly give you full information for the asking—information imparted gratis from a mountain of electrical knowledge.

WRITE NOW IF YOU ARE A
"1911 Lighting Bug"

Handsomely illustrated catalog goes with knowledge.



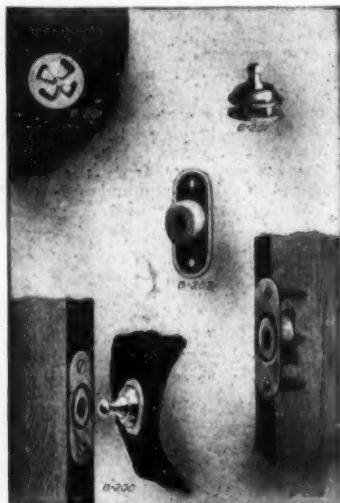
This coil is very economical in current consumption. Has High Speed Vibrator, Long Life and enormous efficiency.

DEALERS—May find some territory still open.

WRITE AT ONCE

SCHUG'S Electric Lighting Fluid keeps afloat many Motor Boats
SCHUG ELECTRIC MFG. CO., 321 E. Jefferson Ave., DETROIT, MICH.

BROGA AUTOMATIC FASTENERS



Above cuts show designs of special Motor Boat Curtain Fasteners that set flush with wood.

B-200—Shows the complete Broga Automatic Fastener.

B-201—Shows method of securing fastener to goods. The stud has twin washers, one on each side of the goods, to prevent tearing out.

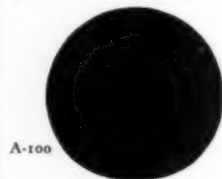
B-202—The socket, front and back view. The front view shows method of fastening it to woodwork.

For Motor-Boat Curtains, Slip Covers, Spray Hoods, Etc.

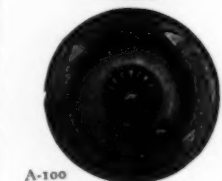
The only Fastener designed for Motor Boats; sets flush with wood, leaving no projections to be knocked off or damaged when approaching docks or other boats.

They work automatically from any angle; add refinement and distinctiveness; are durable, and a sure lock.

Manufacturers, Jobbers or Consumers, do not overlook the Ideal Equipment for Motor Boat Curtains. Write for Free Samples—or better, since they are so inexpensive, send for a set. (See prices in next column.)



A-100



A-100

FRONT AND BACK VIEW of "Broga" Automobile Curtain Fastener which is also used on "Motor Boat" Curtains, etc., with stud A-103 or A-105.



A-103

This form of stud is used for fastening goods to woodwork, etc.



A-105

This form of stud is used for fastening goods to goods.

Y-O-U YOU Y-O-U

Have been looking for an Automatic Fastener for your Motor Boat Curtains and Spray Hoods—one that works automatic from any angle, and can be operated in an instant.

Broga Fasteners fill a long felt want, and are the only fasteners designed especially for Motor Boat use.

When you push your boat into the water for a season of pleasure be sure that you can say "She is equipped with Broga Automatic Fasteners." Then, your pleasure will not be marred by trying to fasten the old style fasteners at a critical time.

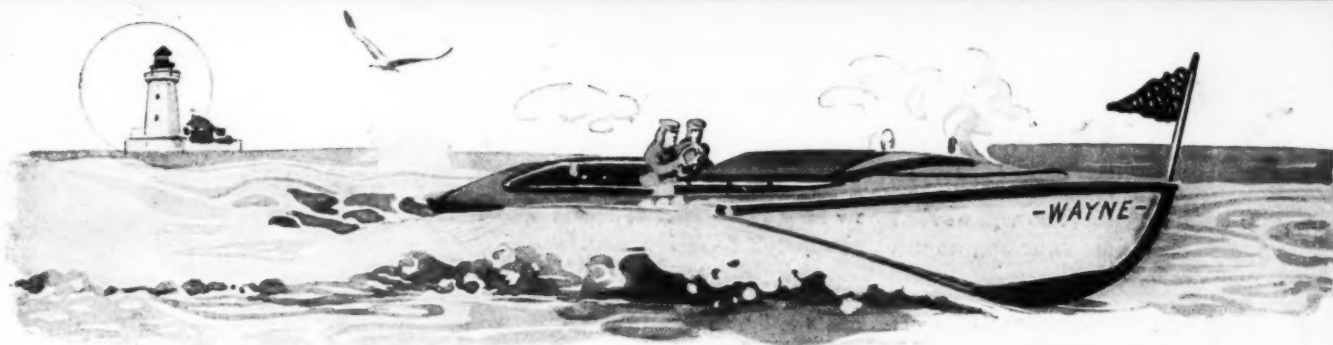
If your dealer hasn't Broga Fasteners in stock, we will be pleased to fill your order by mail immediately upon receipt of same.

Prices Styles A-103 and A-105 \$.75 per Dz. Net
Styles B-200 .85 per Dz. Net

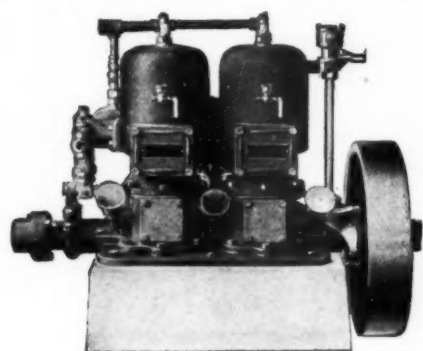
All prices, F. O. B. Syracuse, N. Y.

Order today and fix up right. Descriptive price-list sent upon request.

BROGA AUTOMATIC FASTENER COMPANY
BROGA SALES CO., Exclusive Selling Agents, CHICAGO, U. S. A.



DEALERS SHOULD HANDLE WAYNE MARINE MOTORS— THE IDEAL MOTOR FOR PLEASURE AND BUSINESS



2-CYLINDER MOTOR.
4-inch bore, 4-inch stroke, 2-cycle, develops 8 H. P.,
drives 18 to 20-ft. boat at speed of 14 to 18
miles per hour.

THE engine you sell should have the four water craft essentials--*Reliability, Simplicity, Economy and Power.* When you sell a customer a marine engine, you should feel self-confident that he will be engine satisfied; that his motor troubles will be minimized; that the power will be greatest and the cost of up-keep least. When you can honestly do this, you can control the marine motor trade in your territory.

Wayne Motors

The WAYNE MOTOR is the medium by which this can be accomplished. WAYNE MOTORS represent sixteen years of engine evolution. All the features of this time have been gathered together as a unit and assembled into a motor that is ideal for pleasure and business.

WAYNE MOTORS were tested by engineers of the University of Michigan, whose endorsement is a great compliment.

The WAYNE is built in 4 and 8 H. P., 2 cycle, 3 port and has less than one-third the moving parts of other motors. All parts are of standard design and interchangeable throughout. Bearings are exceptionally large, die cast babbitt and accurately bored. Large hand hole plates facilitate all the parts to easy access.

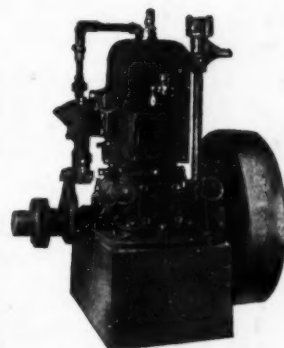
We want a dealer in every locality to represent the WAYNE MOTOR. It means more engine customers for you and a pleased dealer for us.

Write to-day for further information, price list and catalogue.

The WAYNE MOTOR COMPANY

260 Jefferson Avenue

Detroit, Mich.



1-CYLINDER MOTOR.
4-inch bore, 4-inch stroke, 2-cycle,
develops 4 H. P., drives 18 to
20-ft. boat at speed of 6 to
10 miles per hour.

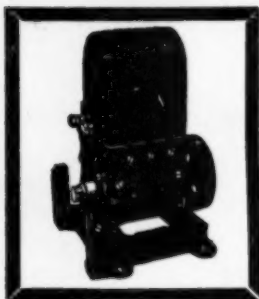
The
Wayne
Motor Co.,

260 Jefferson
Ave., Detroit,
Mich.

Gentlemen:—
Please send us price list of mo-
tors, catalogues and all information
on special agency proposition.

FIRM.....

ADDRESS.....



THE K-W LOW TENSION MAGNETO,
\$35.00.

See cut above.

Belt or friction drive, for use with timer and K-W Coil.

Guaranteed to start the Engine without batteries.

Electric Search Lights

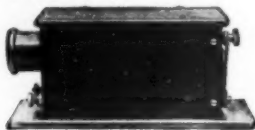
In addition to running ignition, K-W Low-Tension Magnetos will run a 25 candle power Tungsten bulb.

Complete search light outfit, magneto, deck-control search light, switch, wire and bulb, \$50. Search light only \$15.

All K-W Magnetos are **GUARANTEED TO START WITHOUT BATTERIES** and run the engine perfectly at all speeds.



The K-W SPARK COIL has its windings **GUARANTEED FOREVER** against breakdown. They don't cost YOU any more than the other kind. Write for coil folder today.



Single Cylinder Marine Coil, without cover . . . \$6.00
Single Marine Oak Coil, with cover . . . \$7.00

We Have a Guaranteed Remedy for Your Ignition Troubles WRITE FOR CATALOGUE

WE PAY EXPRESS charges East of the Mississippi River or to the Mississippi on points beyond, when cash accompanies the order on any of our goods.



K-W High Tension Magneto

Must be gear driven. NO Coil, NO Timer, NO Batteries. Gives absolute synchronism. If you want all the power out of your engine there is in it, use the K-W High-Tension Magneto. Especially for RACING ENGINES.

MODEL J.

See cut below

For engines up to 30 h. p. that can be cranked easily.

1-cyl. \$40.00
2, 3, 4-cyl. 50.00
6-cyl. 55.00

MODEL H. Four Magnet.

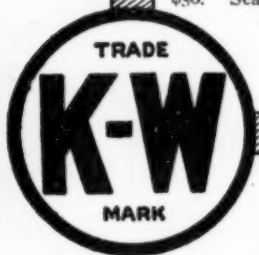
For engines up to 40 h. p.

2, 3, 4-cyl. \$75.00
6-cyl. 85.00
8-cyl. 95.00

MODEL HT. Five Magnet.

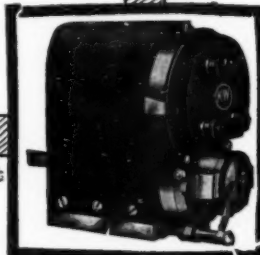
For largest engines made.

2, 3, 4-cyl. \$85.00
6-cyl. 95.00
8-cyl. 105.00



50 POWER AVE.

CLEVELAND, OHIO, U.S.A.



FOR SALE BY
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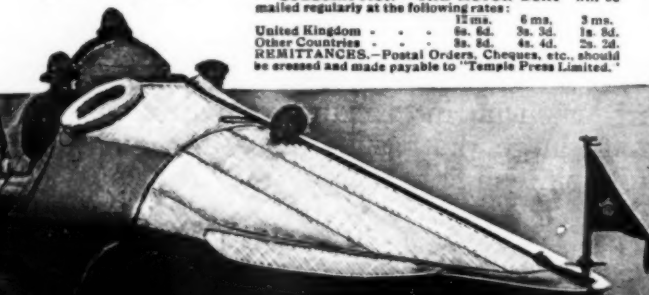
The MOTOR BOAT

Every Thursday.
ONE PENNY.

Published by:
TEMPLE PRESS Ltd.
7-15, Rosebery Ave.,
LONDON, E.C., Eng.

DEALS exhaustively with every phase of the Sport and Industry, providing matter of interest and instruction to present and prospective owners of power craft, be they lovers of the stream, lake, tideway, or the open sea. It is profusely illustrated by working drawings in the technical section, and all important racing events are illustrated by photographs and sketches. There is no better journal for keeping one well informed on ALL questions pertaining to power craft. Its scope is unlimited—Advertisers in its pages receive enquiries and orders from all parts of the world.

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BEWARE of Texas, California, or Middle Western oils—they are not as good lubricants as Pennsylvania oils.

Beware of dark-colored oils—they are full of carbon.

Beware of very thin oils—they will not lubricate properly.

Beware of concerns who say their oils "will not carbonize"—for such statements are either falsely or ignorantly made.

All mineral oils are hydro-carbons and they *all* contain more or less carbon.



"Best For Motor-Maker-Man"

Wolf's Head oils are Pennsylvania oils—highly filtered—and the best gas engine cylinder oils made.

They are not cheap—but they cost less in the long run.

Wolf's Head crystal oils—completely filtered, water white Pennsylvania oils—are used by aviators and owners of high-priced automobiles and racing motor boats, who, regardless of first cost, desire an oil which will keep their bearings smoothest, and their cylinders cleanest.

WOLVERINE LUBRICANTS COMPANY

OF NEW YORK

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3506 So. Morgan St.

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Growing steadily, surely and permanently, the AMERICAN has achieved circulation supremacy in all New England.

It has now the largest circulation—both daily and Sunday—over 380,000.

These are big figures, big for Boston and New England, big for the United States, big for the entire World.

They mean for the advertiser a tremendous buying public. Estimating only three readers to a paper, and the average estimate is four or five to a paper, the advertiser in the Evening or Sunday AMERICAN is talking to over **One Million** people every issue.

Just consider for a moment the significance of a **Million or More Readers**. For sake of comparison im-

in the daily field. It has over 300,000 more circulation than the next highest Boston evening newspaper, and exceeds by more than 100,000 the combined circulation of all the Boston evening newspapers.

The Evening AMERICAN is third in circulation of all the world's great evening newspapers, being equalled alone by the New York Journal and the New York World.

The Sunday AMERICAN leads the next highest Boston Sunday newspaper by over 50,000 and the third highest by nearly 100,000.

The Sunday AMERICAN also ranks as the fourth greatest Sunday newspaper in America, being equalled in circulation by only three others, the New York American, New York World and Chicago Examiner.

THE BOSTON AMERICAN

agine a preacher or teacher with a daily audience of over a million; a store with over a million customers a day; an army of a million, or, better yet, a gathering in one place of nearly every man, woman and child in Real or Metropolitan Boston. Imagine every one of such a gathering reading the Boston AMERICAN and you have an accurate idea of this paper's stupendous circulation, influence and advertising value.

To print this circulation takes over 400 tons of white paper each week.

The Evening AMERICAN holds undisputed supremacy

The advertising growth of the AMERICAN, both display and classified, has kept pace with the circulation growth.

Advertising supremacy follows circulation supremacy surely and inevitably, for circulation is what pays the advertiser, and the advertiser sooner or later gives the bulk of his business to the paper that pays best. For always is the best the cheapest. As has been well said, it is not what you pay for advertising, but what advertising pays you. That is the test. **AND THE BIG CIRCULATIONS ALWAYS PAY ADVERTISERS THE BEST.**

The circulation of the AMERICAN is an open book. The publishers of the American Newspaper Directory has made an exhaustive and minute examination of the circulation down to the smallest detail, and consent has been granted the Association of American Advertisers and the Retail Board of the Boston Chamber of Commerce to conduct similar examinations



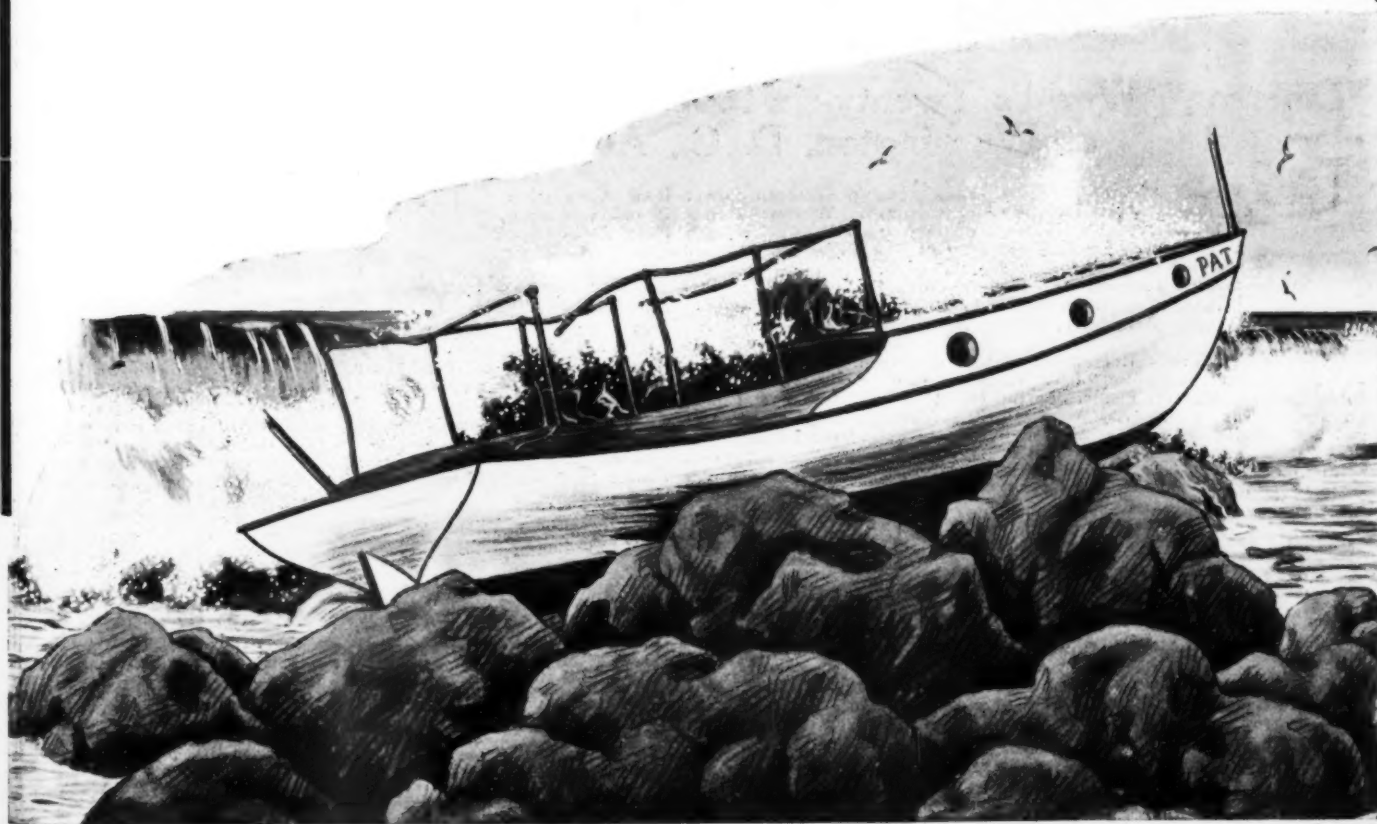
If Your Boat Runs on the Rocks

are you protected? Insure yourself against loss or damage by a policy that covers burning, sinking, collision, running on the rocks and the usual risks of a boat owner. A few cents a day may save you hundreds of dollars. Write for particulars.

Insurance Company of North America
Walnut and Dock Sts., Philadelphia

FOUNDED 1792

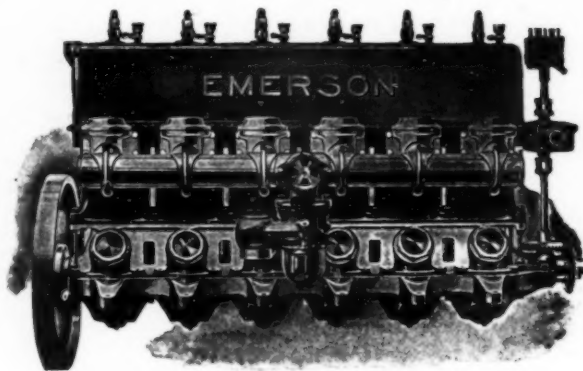
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World's Records and Performances of the EMERSON ENGINES

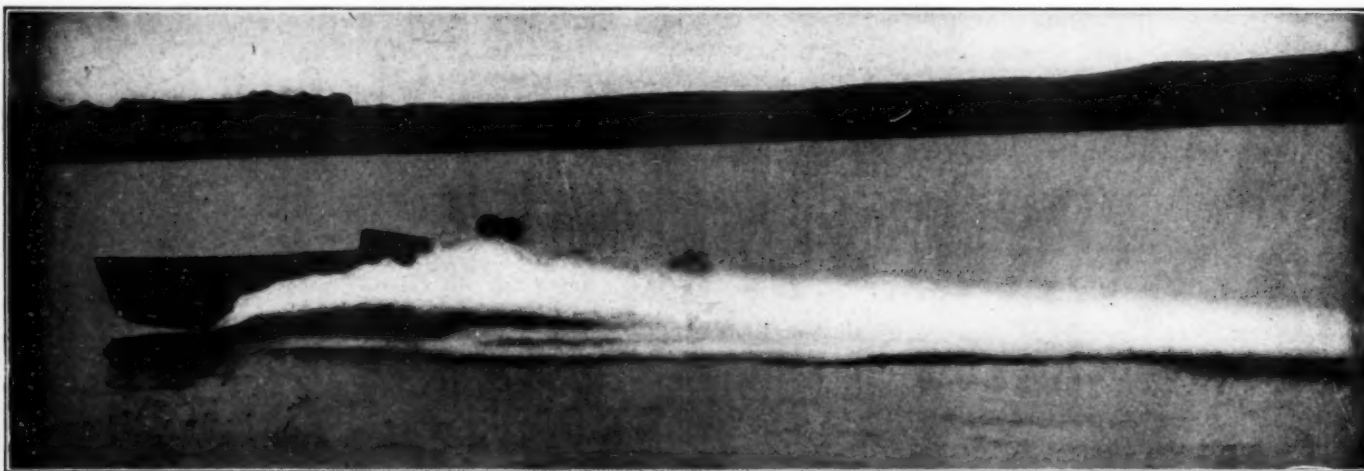
THESE engines are built by workmen most of whom were selected from the United States Gun Factory at Washington, with special machinery that insures a great accuracy; steels of exceptionally high tensile strength and toughness are employed wherever possible, even the fly-wheel centers are of high carbon saw-plate ground and oil-tempered to insure great strength and lightness. The crank-shaft has over thirty inches of bearing surface to insure against frequent adjustment. The engine is practically finished all over, the composition base is scraped all over and the copper jackets, manifolds and inspection plates highly polished, making the most attractive engine ever constructed. Our exceptional facilities enable us to give the quality and power at the right price while our design provides for eliminating the unnecessary weights of cast iron, heretofore necessary in engine construction. With this engine a light weight boat can be constructed that is seaworthy and with a surplus strength to carry the motor, at from \$200 to \$400 that will, with a certainty, far surpass in speed and comfort any boat carrying a heavy motor with a necessarily proportionately heavy boat regardless of power or cost. With our engine, the moving parts being light and strong, eliminates the disagreeable vibration produced by heavy motors. The following results show that no engine of any make has ever before been able to produce such marvelous speed and endurance as the "Emerson" and, in ten days' racing, in competition with the fastest boats in existence, has won more important races, carrying with them cash prizes and valuable trophies, than all the rest of the various makes of engines combined.



Emerson Six Cylinder Racing Engine

100-125 H. P.

Weight 300 pounds



"Emerson" World's Twenty-six-foot Champion, 36.1 Miles per Hour at Washington, D. C., August 20, 1910.

Winner 26-foot free-for-all championship Western Power Boat Association.
Winner 32-foot free-for-all championship Western Power Boat Association.
Winner 40-foot free-for-all championship Western Power Boat Association.
Winner Blue Pennant given by "Motor Boat" for Western Speed Championship.
Winner Carpenter Cup representing Speed Championship, Hudson River Yacht Racing Association.
Winner Lukenheimer Trophy, Ohio Valley Carnival.
Winner Corinthian Yacht Club Trophy, Speed Championship, Potomac River.
Winner Marshall Hall Trophy for speed championship.

Holder of World's Record for 26-foot displacement boats in competition surpassing in speed the records of such well-known boats as Independence, champion of W. P. B. A., 1908; Hoosier Boy, champion W. P. B. A., 1909; Red Top II, champion of Mississippi Valley 1910; Scripps, Mascot, Comet, Disturber, M. V. II, Syracuse, Eldredge V, Gun Fire II, Elmer L., or any other boat that has ever raced on the courses of the Mississippi Valley, Western Power Boat or Hudson River Yacht Racing Associations many of which were equipped with engines of from two to six times the cylinder area of the Emerson's engine. In all of her races this boat has carried two heavy men, weighing over 185 pounds each, and her hull is substantial, strong and seaworthy, weighing over 600 pounds and is not a racing freak. The above performances have been made possible by our new four-port system, 300 pound engine, far surpassing any motor ever built for workmanship, finish, design, or power to pounds of engine weight.

Write for Catalog to-day

Manufactured by the

EMERSON ENGINE COMPANY (Inc.)

ALEXANDRIA, VA., U. S. A.

NEW YORK OFFICE: 1737 BROADWAY

How to Select the Right Motor for your Boat



First—Write for Our Big Marine Catalog

the largest and most complete gas engine catalog ever published.

Gives details and information you should know.

Tells the truth, and a lot of it, about Gray Motors.

You will know exactly what to expect and get if you decide on a Gray.

Will give you a lot of general motor information.

It's a real education in marine motors—their construction, use and design.

It will tell you where you can see the latest type of a Gray Motor in use.

But better still it will carry our urgent invitation to visit our big plant—where you can see the care we take in manufacturing, testing and shipping and care of our motors after they are sold.

Know What You Are Getting

Don't select your motor too hastily.

Although the season is well advanced and you may feel the need of *quick* action we urge you to consider the matter carefully.

A poor selection may mean a whole season of dissatisfaction—annoyances and costly delays.

The rush is on—It's more important than ever that you make your selection carefully.

Don't take anything for granted.

Find out what you are getting.

Find out about the facilities of the manufacturer.

Find out all you can about their product.

Find out what kind of a reputation the engine has among experienced gas engine men.

It's too late in the season to experiment or take any chances with an unreliable, poorly constructed gasoline engine.

What Our Facilities Mean to You

We have been in the marine gas engine business for years.

Through fair dealing and honest product we have built up the largest 2-cycle marine gasoline engine business in the world.

We have an organization — thorough complete and best able to look after the needs of our customers.

All this means much to you.

It means that we have the facilities to look after your orders promptly and properly even in the very busiest season.

It means that when you buy a Gray Motor you get an engine with the reputation of a reliable manufacturer behind it.

It means that you get an engine that is built right—in a modern plant—of the best material—by the most expert workmen.

It means that you won't have to wait for your motor—we can make immediate shipment.

Study Our Catalog Carefully

You'll find our catalog one of the best "marine engine guides" ever published.

The information it contains is very simple and concise—no frills or big talk—just plain honest facts—you won't find us making any statements that we can't back up.

The line of engines described and illustrated is very complete.

You'll find us ready to equip boats of any size—canoes—speed boats—work boats—pleasure boats and large cruisers.

Engines in 1, 2 and 3-cylinder sizes, from 3 to 36 H.P. We are prepared to furnish multiple unit power plants up to 108 H.P.

Gasoline or kerosene fuel.

Gray Motors Have a Reputation

That's why we urge upon you the necessity of getting our catalog.

You're sure to find the engine best suited to your needs.

And you won't make any mistake in selecting your engine from our catalog.

You'll get an engine with the broad guarantee of a big responsible concern behind it—an engine that has won its high standing on pure merit alone.

**THE GRAY MOTOR CO. HAS ALWAYS BELIEVED
IN ADVERTISING PRICES IN PLAIN FIGURES**

3 H.P.

Guaranteed to develop 4 h. p. Same material and workmanship as our \$528 motor. Complete outfit ready to install

\$60

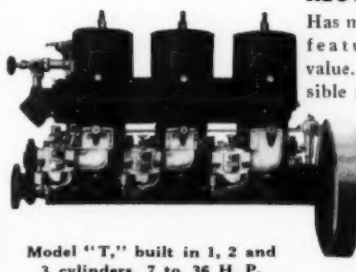
Made in 3, 4½ and 6 H. P.

12 H.P.

Very sturdy and compact. Noted for the excess power they develop. Complete outfit ready to install

\$188

Made 9 and 12 H. P. sizes



Model "T," built in 1, 2 and 3 cylinders, 7 to 36 H. P. gasoline or kerosene fuel

Model "T"

Has many exclusive features of great value. Most accessible marine engine ever built. Complete outfits

\$115

and upwards

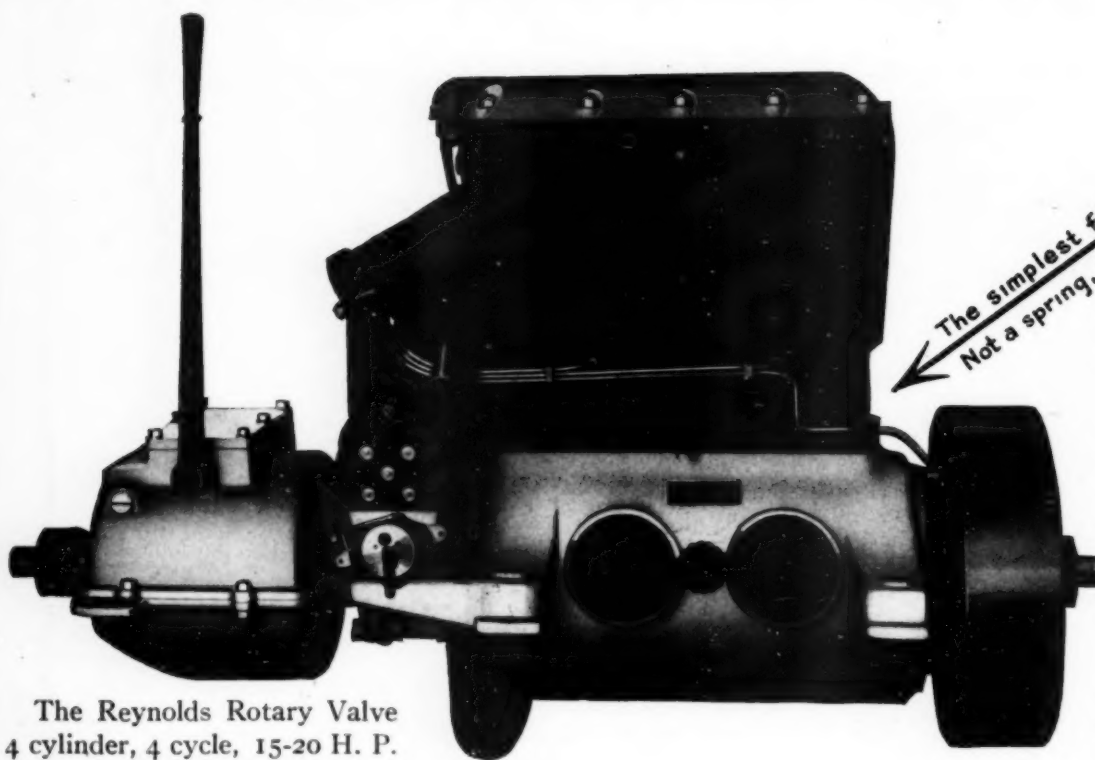
Made in the largest and most up-to-date plant in the world devoted exclusively to the manufacture of Two-Cycle Motors

GRAY MOTOR CO., 722 Woodward Ave., DETROIT, MICH.

Canadian Gray Motors Ltd., 722 River Front St., Walkerville, Ont.

REYNOLDS

ROTARY VALVE MOTORS



The Reynolds Rotary Valve 4 cylinder, 4 cycle, 15-20 H. P. Power equipment of "Peerless," which won the 50 mile endurance handicap at Jacksonville, April 29th, finishing within 20 seconds of time allowed by the Judges on the strength of her trials.

Are you satisfied that the motor in your boat is all that you are entitled to in this day of progress? If so, do not look any further into the

Reynolds Rotary Valve Four Cycle Marine Motor

It is for those who are looking for a moderate priced motor that is absolutely reliable, simple, sturdy and quiet.

Mr. Austin Church, owner of "Helen," writes of his Reynolds engine, "It is a perfect success and in fact the quietest running motor I have ever ridden behind." This is saying a good deal, as Mr. Church has been a builder of the highest grade of boats for years and has ridden behind all the best motors.



"HELEN" OF TRENTON, MICH., DOING BETWEEN 16 AND 17 MILES
EQUIPPED WITH
REYNOLDS ROTARY VALVE 4-CYCLE
15-20 H. P.

REYNOLDS MOTOR CO.
200 Hillger Avenue DETROIT

From every hand comes the same word, "it is the smoothest, quietest machine I have ever seen." And why not?

All the reciprocating parts, which create the everlasting clatter in a poppet valve motor have been eliminated, and rotation of the valves has been secured entirely through the use of the proverbially quiet spiral gear. What is more, there is not a moving part exposed, with the exception of the fly-wheel.

This is what it will do for YOU

The Atwater Kent Ignition System



Is the logical one for your motor boat

Why? you ask.

Simplicity, for one thing. Compare the one adjustment of the Unisparker or Spark Generator, needing but a minute's attention once or twice a season, with the constant fiddling bother and testing of the various parts of a vibrator coil. Compare it again with the high cost, difficult installation and other troublesome features of the average magneto.

Economy, for another point. Contrast a full season of sweet, smooth running obtainable with an Atwater Kent system from a set of ordinary dry cells, with the miserable performance of the vibrator coil which will run but a few weeks on the same amount of battery power.

Reliability—last, but not least. The nuisance and faultiness of the ordinary coil is too well-known to need description, while the Atwater Kent system requires no more attention than any other part of your equipment. Thousands of users will testify to this fact. Ask them.

Then compare the convenience of the starting button on the multi-cylinder sizes, which will start the engine on the spark eight times in ten, with the cranking necessary to "get going" with a six months old magneto, and decide for yourself which is the logical system.

Insure a pleasant season, free from ignition worry, by changing now to the Atwater Kent. Send for interesting descriptive booklet and prices.

ATWATER KENT MFG. WORKS

42 to 50 North 6th Street,

Philadelphia, Pa.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

Will You Trail Along In The Buffalo Wake, Or Buy An Engine Built "The Buffalo Way?"

BUFFALO engines have stood the *time test*—that's what counts—a dozen years of hard work in the boat.

They are powering boats of all sorts and sizes.

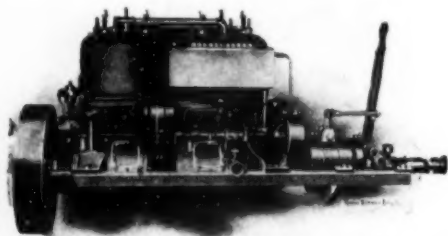
Hundreds of BUFFALO owners tell us their engines have run for *years* without any repair cost.

"Just give them oil and gasoline," they say. "The BUFFALO does the rest. You don't even need to watch them."

That is because they are built **THE BUFFALO WAY**.

When you start on a cruise wouldn't it be worth something to *know* that your engine would bring you home again without a break-down?

THAT'S WHAT YOU PAY THE FEW EXTRA DOLLARS FOR WHEN YOU BUY A "BUFFALO."



A 25 H. P. "Auto Marine" BUFFALO.



And besides that there is the money you save on *repair bills*. It soon counts up.

Figure it out yourself.

BUFFALOES may cost a trifle more *by the engine*, but they are far the cheapest *by the season*.

In other words, it is just the old question of *real economy* or the *short-sighted kind*.

Think it over.

And while you are thinking get the BUFFALO BOOK. It's free.

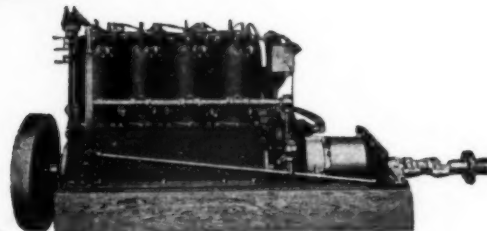
"The Engine of Constant Service"

Buffalo engines are built in 23 models—2 to 225 h.p.
"An Engine for Any Sort or Size of Boat."

Buffalo Gasolene Motor Company
1204-16 Niagara Street - BUFFALO, N. Y.

Your Protection and Safeguard

L A M B E N G I N E S



THEY are the beacon lights of motor boating. They represent, and are the perfect quality of marine engine construction.

They are solid, stable, built for hard usage—the kind of marine engine that the motor boatman needs, and always finds to be all that a high grade marine motor ought to be.

READ CAREFULLY THE LAMB ENGINE SPECIFICATIONS
and then send for the Lamb Engine Catalogue.

CYLINDERS—Cast separately, water jackets fitted with hand holes, walls ground, medium duty and high speed, 5/4 in. bore, 6 in. stroke; heavy duty, 5/4 in. stroke, 7 in. stroke.

CRANK CASE—Large hand-hole plates, end disk removable. **WATER CIRCULATION**—Bronze, long-stroke plunger pump. Water piping has expansion joints. Water bypassed around cylinder head joint.

REVERSE CLUTCH—Planetary type. Direct cone drive ahead; for reverse gears in action, gears steel on bronze pinions; encased in oil; same speed astern as ahead. Only two adjustments. Control led to forward end of motor.

IGNITION—Jump spark; Splitdorf or Bosch Magneto, when specified; controls led to forward part of motor.

CYLINDER HEADS—Removable; valve caps polished brass. **CRANK-SHAFT**—One-piece open hearth steel, milled, turned and ground; fly-wheel end tapered.

LUBRICATION—Positive mechanical oiler, driven by ratchet from cam-shaft; oil carried to each wearing part; centrifugal oil rings used on crank shaft.

PISTONS AND RINGS—Trunk pattern; 3 rings on medium duty type; 5 rings heavy duty type; ground.

INTAKE BRANCHES—Give a direct and easy flow of gas; fitted with hand-hole plates.

GARBURETER—Schebler; controls led to forward part of motor; hot-air intake.

VALVES AND VALVE MECHANISM—Both on one side. Thoroughly water-jacketed. Valve and stem forged from one piece. Lateral adjustment on push rod. Rod actuated by link and roller of hardened steel. Guides long and removable.

CONNECTING RODS—Annealed malleable iron H. cross-section. All connecting rods except on 15 H. P. are fitted with 4 bolts; each bolt fitted with 2 nuts and cotter pins.

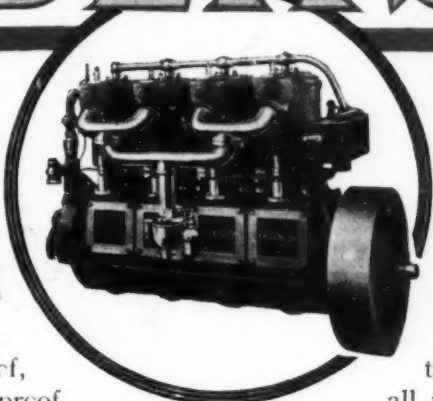
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Lamb Engine Company of New York
Eastern Distributors
30 Church Street, New York City

Lamb Boat & Engine Company
Members N. A. E. & B. M.
Clinton, Iowa

ANDERSON

MARINE



ENGINE

¶ Any engine that does what it ought, is a pretty good engine—but here's one that does more. ¶ And it's fool proof, as far as anything can be fool-proof.

That is, it'll fool any fool that tries to fool it. It's a wise engine, and keeps right on. ¶ Clean-running, strong, tireless; and it takes care of itself. ¶ The cut in the center here shows the new four-cylinder five by six—the merriest little power producer in the scientific world. High-grade, Up-to-date. Every part fitted, and re-

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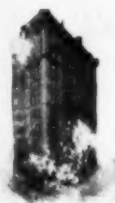
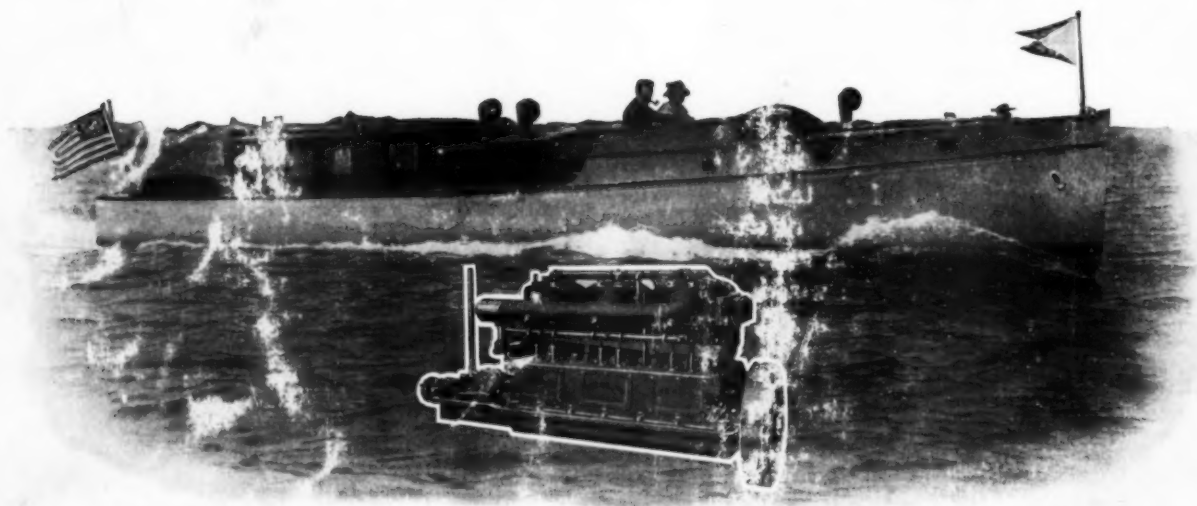
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